

Australian Government

# CARBON POLLUTION REDUCTION SCHEME **Australia's Low Pollution Future**

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# Foreword

#### Australia's Low Pollution Future

Climate change poses a substantial threat to Australia's economy and our way of life.

Australia faces a choice. We can either wait and leave our children and grandchildren to face the full impacts of climate change, or we can take responsible action now by investing in the industries and jobs of the future.

#### Why we need to act

As a hot and dry country, we have more to lose than any other developed nation if the world fails to reduce the carbon pollution that causes climate change.

We are already feeling the impacts of climate change in Australia and across the globe. In the past twelve years, we have experienced eleven of the hottest years since records began and temperatures are projected to continue to rise over the next century.

In Australia, temperatures are expected to rise by around five degrees by the end of the century. Coastal properties will be threatened by rising sea levels and tidal surges. Food production from our farms will be reduced as a result of longer, more frequent and more intense droughts. National treasures, including the Great Barrier Reef, Kakadu wetlands and the big tourism industries they support will be under threat.

That's why we need to act decisively to protect our way of life and the Australian economy.

#### Climate change and the global financial crisis

The world is currently confronting the worst financial crisis in three quarters of a century, but this does not mean we can ignore the threat climate change poses to our long term economic prosperity. On the contrary, this current crisis makes it more important we secure the long term prosperity that comes from building the low pollution economy of the future.

It is often easier for governments to focus on immediate circumstances at the expense of long term challenges, but ignoring these challenges only makes them worse. Analysis from the Australian Treasury and Professor Ross Garnaut demonstrates the longer we wait to take action on climate change, the more it will cost.

The Australian Government will continue to act decisively to protect Australia from the worst effects of the global financial crisis while also addressing the long term challenge of climate change.

The Government is determined to get the balance right. This means securing Australian jobs and assisting households today, while at the same time moving to the low pollution economy that will create the jobs of the future.

### The low pollution economy of the future

The Carbon Pollution Reduction Scheme as set out in this White Paper is the foundation of the Australian Government's whole of economy strategy to tackle climate change.

Implementing the Scheme represents the biggest structural economic reform since the opening up of Australia's economy in the 1980s and 1990s.

For the first time, the Scheme will make industries pay for the carbon pollution they generate and there will be a limit on Australia's contribution to global carbon pollution.

The work of the Treasury and Professor Garnaut confirms that this responsible economic reform will enable Australia to reduce carbon pollution while continuing to grow our economy and incomes. Introducing a cost on carbon pollution will drive investment in new technologies and create the jobs of the future. For example, Australia's transition to a low pollution economy is expected to see the renewable energy industry grow to around 30 times its current size by 2050. Growth in this industry alone will provide significant job opportunities for Australians.

Taking responsible and decisive action on climate change is crucial to our economic prosperity now and for the future.

### Targets for reducing Australia's carbon pollution

The Australian Government has a substantial commitment to reduce our carbon pollution by 60 per cent of 2000 levels by 2050.

By 2020, we have committed to reduce Australia's carbon pollution by up to 15 per cent below 2000 levels in the context of a global agreement where major economies agree to substantially restrain carbon pollution and advanced economies take on reductions comparable to Australia.

We have also committed to an unconditional 5 per cent reduction in carbon pollution below 2000 levels by 2020, which represents a significant cut of around 27 per cent on a per capita basis.

By harnessing the innovation and efficiency of the market, the Carbon Pollution Reduction Scheme will allow Australia to meet these serious targets at the lowest overall cost to our economy.

#### Assistance for households and business

The Government will reinvest every cent it raises through the Carbon Pollution Reduction Scheme to build the low pollution economy of the future and to help Australian households and businesses adjust.

Unfortunately, there is no cost-free way to tackle climate change. There will be a modest increase in the overall cost of living when the Scheme is introduced, with an increase in household electricity bills of around \$4 per week if the carbon price is \$25.

This White Paper sets out a comprehensive new package of financial assistance for Australian households worth around \$6 billion a year on going. This assistance will be available from the commencement of the Scheme in 2010.

In addition, the Government will assist motorists through a cent for cent reduction in fuel tax for the first three years of the Scheme. This means households and business will be shielded from increases in the cost of fuel resulting from putting a cost on pollution.

We will invest a further \$2.15 billion over five years to help business, community sector organisations, workers, regions and communities adjust to a low pollution future through the new Climate Change Action Fund.

To secure the jobs of today, the Government will provide substantial assistance to Australia's important emissions intensive-trade exposed industries. This assistance will enable these industries to move to a low carbon economy and will support their continued growth here in Australia.

### Helping to shape a global solution

Everyone needs to do their bit to tackle carbon pollution. In this White Paper, we have outlined Australia's significant medium and long term targets for cutting carbon pollution.

We recognise that reaching a comprehensive and ambitious global agreement will be tough, but Australia stands ready to ensure we play our part in the global effort.

By introducing the Carbon Pollution Reduction Scheme, Australia will join other developed nations in the fight to reduce carbon pollution. Emissions trading is already underway in 27 European countries and the Government welcomes President-elect Obama's commitment to introduce an emissions trading scheme in the US.

Market based economic reforms like the Carbon Pollution Reduction Scheme are a critical part of global leadership on climate change.

Demonstrating that we can make real cuts to Australia's carbon pollution while continuing to grow our economy will encourage other countries to join the global fight.

#### This is not the time for delay

While difficult, the Australian Government is determined to get the balance right in tackling climate change. The Carbon Pollution Reduction Scheme will build the low pollution economy of the future, secure the jobs of today and protect our uniquely Australian way of life.



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Senator the Hon Penny Wong Minister for Climate Change and Water

The Hon Kevin Rudd MP Prime Minister

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The Hon Wayne Swan MP Treasurer

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# Abbreviations and acronyms

AASB	Australian Accounting Standards Board	
AAU	Assigned amount unit	
ABARE	Australian Bureau of Agricultural and Resource Economics	
ACCC	Australian Competition and Consumer Commission	
ACT GGAS Australian Capital Territory Greenhouse Gas Abatement Sch		
AEMC	Australian Energy Market Commission	
AER	Australian Energy Regulator	
AGEIS	Australian Greenhouse Emissions Information System	
AIP	Australian Institute of Petroleum	
ANZSIC	Australian and New Zealand Standard Industrial Classification	
AOFM	Australian Office of Financial Management	
APPEA	Australian Petroleum Production & Exploration Association	
ASAE	Australian Standard on Assurance Engagements	
AUASB	Auditing and Assurance Standards Board	
CCS	Carbon capture and storage	
CDM	Clean development mechanism	
CER	Certified emission reduction	
CGE	Computable general equilibrium	
CGT	Capital Gains Tax	
CISA	Centre for Integrated Sustainability Analysis	
CNG	Compressed Natural Gas	
$CO_2$	Carbon dioxide	
CO <sub>2</sub> -e	Carbon dioxide equivalent	
COAG	Council of Australian Government	
CSIRO	Commonwealth Scientific and Industrial Research Organisation	
DSA	Demand side abatement	

DSCR	Debt service coverage ratio
EITE	Emissions-intensive trade-exposed
ERU	Emission reduction unit
ESAA	Energy Supply Association of Australia
ESAS	Electricity Sector Adjustment Scheme
ETS	Emissions trading scheme
EU	European Union
EU ETS	European Union Emissions Trading Scheme
FTA	Free Trade Agreement
GCCSI	Global Carbon Capture and Storage Initiative
GDP	Gross Domestic Product
GEDO	Greenhouse and Energy Data Officer
GIAM	Global Integrated Assessment Model
GNP	Gross national product
GST	Goods and Services Tax
GTEM	Global Trade and Environment Model
GW	Gigawatt
GWh	Gigawatt-hour
HFCs	Hydrofluorocarbons
IASB	International Accounting Standards Board
ICAP	International Carbon Action Partnership
IFRIC	International Financial Reporting Interpretations Committee
IFRS	International Financial Reporting Standards
IMOWA	Independent Market Operator of Western Australia
IPCC	Intergovernmental Panel on Climate Change
ITC	Income Tax Credits
JI	Joint implementation
kg	Kilogram
kW	Kilowatt
ICER	Long-term certified emission reduction

LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MCE	Ministerial Council on Energy
MMA	McLennan Magasanik Associates
MMRF	Monash Multi Regional Forecasting model
MRET	Mandatory Renewable Energy Target
MW	Megawatt
MWh	Megawatt-hour
NAP	National Allocation Plan
NEM	National Electricity Market
NEMMCO	National Electricity Market Management Company
NETT	National Emissions Trading Taskforce
NGAC	New South Wales Greenhouse Gas Abatement Certificate
NGERS	National Greenhouse and Energy Reporting System
NGGI	National Greenhouse Gas Inventory
NLECI	National Low Emissions Coal Initiative
NSW GGAS	SNew South Wales Greenhouse Gas Reduction Scheme
NWI	National Water Initiative
OPEC	Organisation of Petroleum Exporting Countries
OSCAR	Online System For Comprehensive Activity Reporting
OTN	Obligation Transfer Number
PFCs	Perfluorocarbons
ppm	Parts per million
RECLAIM	Regional Clean Air Incentives Market
REDD	Reducing emissions from deforestation and forest degradation
RGGI	Regional Greenhouse Gas Initiative
RMU	Removal unit
t	Tonnes
tCER	Temporary certified emission reduction

TGET	Task Group on Emissions Trading
TJ	Terajoules
UN	United Nations
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
WEM	Wholesale Electricity Market (Western Australia)
Wh	Watt hour
WMO	World Meteorological Organisation
WTO	World Trade Organisation

# **Executive summary**

The Australian Government believes that acting on climate change is essential.

The Government is implementing a comprehensive strategy for tackling climate change in Australia. The strategy is built on three pillars: reducing Australia's carbon pollution; adapting to unavoidable climate change; and helping to shape a global solution.

This White Paper sets out the Government's policy in relation to two major elements of its mitigation strategy: a medium term target range for national emissions, and the final design of the Carbon Pollution Reduction Scheme. These elements are placed in the context of Australia's efforts to help shape a global solution, and a range of supporting and complementary climate change initiatives.

### Need for action on climate change

Carbon pollution is causing the world's climate to change, resulting in extreme weather, higher temperatures, more droughts, and rising sea levels.

Eleven of the past 12 years rank among the 12 warmest years since records began and Australia has experienced warmer-than-average mean annual temperatures for 16 of the past 18 years.

As one of the hottest and driest continents on earth, Australia will be one of the nations hardest and fastest hit by climate change if we don't act now.

Without action, rising temperatures will affect our way of life and the Australian economy, including by:

- threatening coastal property in Australia through rising sea levels, storm damage and tidal surge
- reducing food production from our farms through longer and more frequent droughts
- damaging our national treasures, including the Great Barrier Reef and the Kakadu wetlands and the big tourism industries they support.

Unmitigated climate change poses a significant threat to Australia's economic security. It challenges our prosperity and risks undermining the viability of many of our coastal, rural and regional communities. It is in our national interest to take strong and decisive action on climate change.

Climate change is a global problem requiring a global solution—one where all major carbon polluting nations need to take comprehensive action to stabilise and reduce global levels of carbon pollution. The longer it takes for all major emitters, developed and developing, to act, the greater will be the unavoidable impacts of climate change.

While progress on a global solution is being made, it has been slow. There are many obstacles to achieving a strong international agreement by the end of the next negotiating round, due for completion by the end of 2009.

However, the least responsible path that Australia could take would be to do nothing while we wait to see how the rest of the world acts. Acting now will reduce our own costs of adjustment in the longer term. It provides us with opportunities to develop new industries and new jobs. It gives us an advantage over competitors that persist with economic structures that exclude a price on carbon. Australia needs to be able to compete in a world where low carbon goods and services attract a premium. Acting now offers the best chance of building international confidence and influencing others to follow our lead.

Central to Australia's domestic mitigation response is the Carbon Pollution Reduction Scheme, aimed at delivering substantial reductions in emissions while sustaining strong economic growth and securing our future prosperity.

# **Global economic conditions and climate change**

The world is currently experiencing a financial and economic crisis that has created a climate of uncertainty. Despite the challenges we face today, the global financial crisis has not diminished the risks of climate change, or the need to take decisive and responsible action now.

As the Secretary-General of the Organisation for Economic and Cooperation and Development has recently said, 'We must not let the financial and economic crisis distract our attention from moving towards long-term rational climate policies'<sup>i</sup>.

The global financial crisis, does however, highlight the need for a prudent and balanced approach to delivering the Carbon Pollution Reduction Scheme.

It is always easier for governments to focus on immediate circumstances at the expense of long term challenges. But ignoring long term challenges only makes them worse; meaning that the burden of dealing with these challenges falls on our children and grandchildren.

The Australian Government is acting decisively to protect Australia from the worst effects of the global financial crisis and to tackle the long term threat of climate change.

In delivering the Carbon Pollution Reduction Scheme, the Government has sought to get the balance right: to secure Australian jobs today while at the same time moving to the low pollution economy that will deliver growth and the jobs of the future.

In these uncertain times, there is a strong imperative to provide certainty to industries on future climate change policy so that investment and other business decisions can be made in the full knowledge of future policy settings.

Ultimately Australia faces a choice. We can either wait and allow the challenges to get worse, or we can take action. The Australian people have chosen action.

Responsible action on climate change is crucial to Australia's economic prosperity now and for our children's future.

### Landmark economic reform to tackle climate change

The Carbon Pollution Reduction Scheme will bring about the biggest economic reform since the opening up of Australia's economy under the Hawke and Keating Governments in the 1980s and 1990s.

Like those reforms, it will start gradually, building momentum and, over the longer-term, transforming our economic structure.

In delivering this significant economic reform, the Australian Government is focused on getting the balance right.

The Government will deliver a Carbon Pollution Reduction Scheme that protects jobs today, while at the same time moving Australia to the low pollution economy of the future.

As a market-based solution, the Carbon Pollution Reduction Scheme is the lowest cost way to make this change while protecting the interests of business and households.

The Scheme will, for the first time, put a cost on carbon pollution which will encourage major polluting businesses to move towards a cleaner future.

Firms will, for the first time, take the cost of carbon pollution into account in their investment and production decisions. This will ensure for the first time we recognise the costs of climate change in these decisions.

This will affect the pattern of competitiveness across the economy, the relative prices of goods and services, and the consumption choices made by households.

### Assisting households move to a low pollution future

The Australian Government will provide assistance to businesses and households to help them transition to a cleaner future.

Carbon pollution costs will flow through the economy to affect the prices of electricity, gas, petrol and a range of other goods and services.

For most households, the increase in costs will be affordable, and they will be able to adjust their behaviour to minimise the impact of the Scheme on their standard of living. However, special care has been taken to target direct assistance to those who have the least capacity to bear increases in the cost of living. Pensioners, seniors, carers and people with disability will receive additional support, above indexation, to fully meet the expected overall increase in the cost of living flowing from the scheme.

Other low-income households will receive additional support, above indexation, to fully meet the expected overall increase in the cost of living flowing from the scheme.

Around 89 per cent of low-income households (or 2.9 million households) will receive assistance equal to 120 per cent or more of their cost of living increase.

Middle-income households will receive additional support, above indexation, to help meet the expected overall increase in the cost of living flowing from the scheme. For middle-income families receiving Family Tax Benefit Part A, the Government will provide assistance to meet at least half of those costs.

Around 97 per cent of middle-income households will receive some direct cash assistance. Around 60 per cent of all middle-income households (or 2.4 million households) will receive sufficient assistance to meet the overall expected cost of living increase.

Motorists will be protected from higher fuel costs from the scheme by 'cent for cent' reductions in fuel tax for the first three years.

Each year, the Government will review the adequacy of the household assistance package in the context of the Budget.

The Government will use every cent it receives from the sale of pollution permits to help households and businesses adjust and move Australia to the low pollution economy of the future.

# A global solution for a global problem

Everyone needs to do their bit to tackle climate change by reducing carbon pollution.

By implementing the Carbon Pollution Reduction Scheme, Australia will join other developed nations in the fight to reduce carbon pollution.

Schemes are already operating in 27 European Union member states. President-elect Obama has committed the United States to introduce a scheme. Twenty-seven states and provinces in the US and Canada are already introducing emissions trading, to reduce carbon pollution. Japan is considering introducing a scheme.

New Zealand passed legislation implementing its scheme in September 2008. The new New Zealand Government has indicated it will review the design of the New Zealand scheme by late 2009, but has reaffirmed its commitment to the introduction of emissions trading.

These schemes are a critical part of global leadership on climate change.

Leadership from the developed world encourages other countries to join the global fight.

The Government remains committed to meeting its long-term target of a 60 per cent reduction in greenhouse gas emissions from 2000 levels by 2050.

It also commits to a medium-term national target to reduce Australia's greenhouse gas emissions by between 5 per cent and 15 per cent below 2000 levels by the end 2020.

The top of this range (5 per cent below 2000 levels) represents a minimum (unconditional) commitment to reduce emissions by 2020, irrespective of the actions by other nations. The bottom of this range (15 per cent below 2000 levels) represents a commitment to reduce emissions in the context of global agreement where all major economies commit to substantially restrain emissions and all developed countries take on comparable reductions to that of Australia.

The Government also accepts the findings of the Garnaut Climate Change Review Final Report that:

- a fair and effective global agreement delivering deep cuts in emissions consistent with stabilising concentrations of greenhouse gases around 450 parts per million or lower would be in Australia's interests
- achieving global commitment to emission reductions of this order appears unlikely in the next commitment period
- the most prospective pathway to this goal is to embark on global action that reduces the risks of dangerous climate change and builds confidence that deep cuts in emissions are compatible with continuing economic growth and improved living standards.

Australia's commitment of a 5-15 per cent reduction by 2020 is a serious and credible commitment to the global action required and is realistically attainable in the current circumstances.

In the international context, the Australian Government's medium term target range represents a significant contribution to the global effort.

Australia's particular national circumstances — including its strong population growth, large share of energy and emissions-intensive industries, and heavy reliance on fossil fuels for energy — mean that Australia faces a relatively greater structural adjustment task to move towards a low-emission future than many other developed countries.

Australia's population is projected to grow by around 45 per cent over the 1990-2020 period, so Australia's target range translates to a 34-41 per cent reduction in the per capita emissions of every Australian over this period.

#### Medium-term target range

The Government confirms its commitment to a long-term goal of reducing Australia's greenhouse gas emissions to 60 per cent below 2000 levels by 2050.

The Government has decided on a medium-term target range to reduce emissions by between 5 and 15 per cent below 2000 levels by 2020, balancing the need to make a strong contribution to international efforts with ensuring a balanced and measured start to the Scheme.

The Government believes that it is in Australia's national interest to achieve a comprehensive global agreement to stabilise atmospheric concentrations of greenhouse gases at around 450 parts per million of carbon dioxide equivalent. However, the Government recognises that achieving global commitment to such action in the near term will be challenging.

In the event that a comprehensive global agreement were to emerge involving emissions commitments by both developed and developing countries that are consistent with long term stabilisation of atmospheric concentrations of greenhouse gases at 450 ppm CO2-e or lower, Australia is prepared to establish its post-2020 targets so as to ensure it plays its full role in achieving the agreed goal.

Australia's medium term target range represents a comparable effort to others which have announced targets, such as the European Union.

While very few countries have announced specific quantitative commitments to medium term targets, Australia's target range represents a comparable effort to those that have. For example, the European Union (EU) has committed to reducing emissions by 20 per cent in aggregate by 2020 compared with 1990 emissions, or 30 per cent in the context of strong commitments by other developed countries. The population of the EU is projected to be relatively stable over the 1990-2020 period, so its target range translates into a 24 to 34 per cent reduction in emissions for each European.

The comparisons below highlight that Australia and the EU are both making serious and broadly comparable commitments to reduce carbon pollution so as to place the world on the pathway to effective global action. Proposals by United States President-elect Obama and the targets already adopted by the United Kingdom similarly reflect strong commitments to deliver substantial emissions reductions by developed economies.

Country	2020 targets	2020 per capita reduction	2050 targets
Australia	5-15 per cent below	27-34 per cent below 2000	60 per cent below 2000 levels
	2000 levels	levels	(60 per cent below 1990 levels)
	(4-14 per cent below 1990 levels)	(34-41 per cent below 1990 levels)	
European Union	20-30 per cent below 1990 levels	24-34 per cent below 1990 levels	60-80 per cent below 1990 levels
United Kingdom	26-32 per cent below 1990 levels	33-39 per cent below 1990 levels	80 per cent below 1990 levels
Proposal			
United States (proposal of President-elect Obama)	Return to 1990 levels	25 per cent below 1990 levels	80 per cent below 1990 levels

Table E.1: Comparing carbon pollution reduction targets of different countries

Based on UNFCCC emissions data including land use change and forestry; Australia's Low Pollution Future for Australian population projections; UN population projections for other countries.

# A clear case for action

As the Garnaut Final Report made clear the costs of inaction will be greater than the costs of responsible mitigation. In addition, the aggregate costs of action are modest, and the benefits of action (and the cost of inaction) increase over time, becoming more pronounced in the second half of this century and beyond. The Garnaut Final Report observes that 'the overall cost to the Australia economy is manageable and in the order of one tenth of one per cent of annual economic growth'.<sup>ii</sup> It goes on to conclude that 'the costs of well-designed mitigation, substantial as they are, would not end economic growth in Australia, its developing country neighbours or the global economy; unmitigated climate change probably would'.<sup>iii</sup>

Economies can respond more efficiently to new circumstances when businesses and individuals have certainty about long term direction. Starting as soon as possible on a gradual adjustment to a low carbon economy will provide Australians with the opportunity to plan their responses; to manage changes in technology, equipment and skills requirements; and to minimise the risk of stranding long-lived assets. This will help to reduce the costs of mitigation.

In contrast, a wait-and-see approach leaves the economy exposed to far more serious future adjustment costs that could leave assets stranded, workers unemployed, and households exposed to rising costs. All these risks would drive up the cost of mitigation, and might even put limits on effective mitigation as a weaker economy will reduce our capacity to act. There is a real risk that delaying action will mean bigger changes will need to be made more rapidly, and painfully, in the future.

Indeed, during the last decade of government inaction on climate change, many decisions have been made that did not take account the likelihood of future carbon constraints. These decisions have built a degree of momentum into Australia's emissions pathway which the current Government must responsibly take into account when setting the medium term target range. This underlines the cost of further delay on action on climate change, and the need to begin a sensible and measured transition to a low pollution future as soon as is feasible.

#### Key results from economic modelling

Treasury modelling outlined in *Australia's Low Pollution Future* indicates that with efficient policy settings, Australia and the world continue to prosper while making the emission cuts required to reduce the risks of dangerous climate change.

The key conclusions from Australia's Low Pollution Future are that:

- The economic cost of reducing Australia's emissions will be modest, although costs to sectors and regions will vary.
- Even ambitious emissions reductions goals will have limited impacts on global and national economic growth if they are achieved using broad-based, market-oriented policies.
- Early global action is less expensive than later action, and there are advantages for Australia in acting early if emissions constraints expand gradually across the world. Economies that defer action will face higher long-term costs as global investment is redirected to early movers.
- A market based approach allows robust economic growth into the future even as emissions fall, and many of Australia's industries will maintain or improve their competitiveness under an international agreement to combat climate change.

The Treasury modelling shows that strong action on climate change is unlikely to have a large impact on Australia's long term rate of growth. From 2010 to 2050, modelling results show that real GNP per capita grows at an average annual rate of 1.1 per cent across the policy scenarios, compared to 1.2 per cent in the reference scenario.

Based on the CPRS scenarios in the report, introducing emission pricing is likely to produce a one-off rise in the consumer price level of around 1 per cent for CPRS -5 scenario and around 1.5 per cent for the CPRS -15 scenario, with minimal implications for ongoing inflation.

Australia's comparative advantage will change in a low-emissions world, presenting new opportunities for our economy. With coordinated global action, most sectors of Australia's economy will grow, low-emissions sectors will grow strongly, and many emissions-intensive sectors will maintain or improve their international competitiveness.

# Australia's 'three pillars' climate change strategy in detail

The threat of climate change requires a decisive and strong response. The Government's climate change policy is built on three pillars—reducing Australia's carbon pollution emissions, adapting to climate change that we cannot avoid, and helping to shape a global solution.

#### Pillar 1: Reducing Australia's carbon pollution

Australia must stand ready to play its role in the global mitigation effort, by reducing its own emissions. The Government has provided leadership and clear direction for the national effort

by committing to a medium term national emissions reduction target of between 5 per cent and 15 per cent of 2000 levels by 2020, and a long term target of 60 per cent emissions reduction below 2000 levels by 2050.

Meeting the emissions reductions targets will be challenging. Australia's emissions have been growing at about 1 per cent a year since 1995. Analysis by the Department of Climate Change<sup>iv</sup> suggests that, while Australia is likely to meet its Kyoto Protocol target of limiting emissions in the 2008–2012 period to an average of 108 per cent of 1990 levels, emissions will increase to 120 per cent of 1990 levels by 2020 without additional policy measures.

Substantially reducing Australia's national emissions will involve the most significant structural reform of the economy since the 1980s, although that reform will take place over a longer timeframe. The reform process will be challenging, and will require the Government to implement responsible economic policies focused on reducing emissions at the lowest possible cost over the long term. Australia will need to draw on low cost emissions reductions wherever they occur globally, by allowing for the purchase of robust carbon reduction credits from the international market, so it can meet the challenging targets at minimal cost to the economy.

The Australian economy is well placed to undertake the necessary structural reform. Successive waves of microeconomic reform have increased the flexibility of the Australian economy, allowing Australia to deal with shocks such as the Asian financial crisis and the world economic slowdown of the start of this century and making business better prepared to manage the current global financial crisis. The Government's economic reform agenda, including the reforms being pursued through the Council of Australian Governments and the Australia's Future Tax System Review, will further enhance the economy's capacity for structural reform. Choosing economically inefficient options will not remove the need for reform, but will increase the cost to our nation, raise the burden on firms and individuals and reduce our capacity to assist industries and households through the transition.

The Carbon Pollution Reduction Scheme will be the primary mechanism through which Australia will seek to meet its emissions reduction objectives. The other major elements of the Government's mitigation strategy are the expanded Renewable Energy Target investment in renewables and carbon capture and storage and action on energy efficiency. These comprise the four elements of the Government's carbon pollution reduction strategy. Together, they lay a solid foundation for the transition towards a low carbon pollution future.

The mitigation measures will be accompanied by a range of supporting measures for households and industry.

#### Pillar 2: Adapting to unavoidable climate change

Even if global mitigation efforts are successful, the science shows that some climate change impacts are unavoidable. Those impacts create considerable risks to assets, investments, environments, communities and regional economies. Wise action now to adapt to those unfolding challenges can reduce costs in the future.

Individuals and businesses are often best placed to manage risks associated with their assets the benefits they obtain from adapting to climate change provide an incentive for them to manage exposure to those risks. However they will need high quality and accessible regional climate information at scales relevant to adaptation decisions.

Work on adaptation in Australia is in its infancy, and it is only in the last year that collaborative action has commenced to develop and implement a comprehensive national adaptation strategy. The Council of Australian Governments (COAG) National Climate Change Adaptation Framework involves the Australian Government and all state and territory governments in building our capacity to respond to climate change, and in actions to reduce regional and sectoral vulnerability.

One early step has been to establish the Adaptation Research Facility to drive development and implementation of national research plans to address key knowledge gaps constraining adaptation action, and the Commonwealth Scientific and Research Organisation (CSIRO) Climate Change Adaptation Flagship.

How Australia deals with water as much of Australia becomes drier is a critical adaptation issue. The Australian Government has committed \$12.9 billion to fund a new 10-year plan, Water for the Future, which aims to adapt to climate change, use water more wisely, secure water supplies and improve environmental outcomes for Australia's water resources.

However, much remains to be done to enable Australia to adapt effectively to the impacts of climate change. Individuals, businesses and local government need targeted information and tools to support effective adaptation decisions; sectors and regions need to understand their vulnerabilities; Government provided goods and services need to take into account climate change so that decisions being taken today, particularly involving long-lived assets, do not increase our future vulnerability to climate change.

#### Pillar 3: Helping to shape a global solution

The third pillar recognises that climate change is a global problem that requires a global solution. Australia has the standing and capacity to positively contribute to an international framework that addresses climate change beyond the first compliance period of the Kyoto Protocol, which ends in 2012. An important Australian objective for a global framework beyond 2012 is to ensure that it will slow and ultimately reduce greenhouse gas emissions to avert dangerous climate change.

To strengthen the multilateral response to climate change, the key objective for Australia is to broaden the number of countries willing to make commitments. While all countries should act to mitigate climate change, the top 15 emitters are responsible for around 80 per cent of global greenhouse gas emissions. Australia considers it essential that more countries, especially major emitters, reduce their emissions if dangerous climate change is to be averted.

Developed countries should take the lead. However, developing economies are projected to account for a significant portion of emissions growth into the future. Major developing countries will therefore need to commit to actions to restrain their emissions in a post-2012 framework. Australia recognises, however, that countries' individual commitments will differ according to their national circumstances.

There is a link between Australia's domestic actions and its ability to help shape a global solution. The Carbon Pollution Reduction Scheme is the primary means by which Australia will meet its obligations to reduce emissions. Strong domestic action will also support our

efforts to secure the participation of all countries, both developed and developing, in global efforts to reduce emissions. Developing a flexible and workable emissions trading model also demonstrates to other countries that they, too, can take on emissions targets while maintaining economic growth and rising living standards.

As part of its international strategy, Australia is engaged in a range of bilateral, regional and multilateral partnerships and initiatives which also contribute to efforts to shape a global solution. These include the \$200 million International Forest Carbon Initiative, which supports efforts to reduce emissions from deforestation and forest degradation in developing countries, and the Government's Global Carbon Capture and Storage Initiative which aims to support the development and deployment of industrial-scale CCS technology, here and abroad.

### **The Carbon Pollution Reduction Scheme**

The Government's intention is to commence the Carbon Pollution Reduction Scheme on 1 July 2010. The Scheme will be Australia's primary policy tool to drive reductions in emissions of greenhouse gases. Greenhouse gas emissions are a form of pollution—carbon pollution. The consequent economic cost is not currently reflected in the costs of business or the price of goods and services—because firms face no cost from increasing emissions, the level of emissions is too great. Unless businesses and individuals bear the full responsibility for their consumption and production decisions, the level of carbon pollution will remain too high.

The Carbon Pollution Reduction Scheme is designed to redress this market failure. Emissions trading is simply a mechanism to achieve an objective. That objective is to reduce carbon pollution, and to do so efficiently, by placing a cap on emissions.

Addressing this market failure is a significant economic reform. Tackling climate change will not be easy, and there will be adjustment costs. However, this is not a choice between a no-cost option and an option with costs. It is a choice between taking responsible action now—or neglecting to act and facing much higher costs and more serious climate change later.

The current global economy's circumstances confirm the need for prudent policy decisions, flexible scheme design and effective means to manage compliance costs.

However, in the face of international economic turmoil, Australian businesses need more certainty about their future operating environment, not less. Delaying this significant economic reform would serve no one's interests. Moreover, the current financial crisis has not reduced the threat of climate change, nor the benefits of action. It remains in Australia's best interests to take decisive and meaningful action on climate change.

#### A cap and trade scheme

The Scheme will put a price on carbon in a systematic way throughout the economy. It employs a 'cap and trade' emissions trading mechanism to limit greenhouse gas emissions. Setting a limit means that the right to emit greenhouse gases becomes scarce—and scarcity entails a price. The mechanics of the Scheme are set out in the box below.

A critical point is that the costs to the community arise not from the Scheme itself but from the commitment to reduce national emissions. Alternative non market-based approaches to reducing emissions will impose higher costs on the community because they would not make use of the incentives created by the market mechanism to draw out all low-cost opportunities to reduce emissions.

#### Mechanics of a cap and trade scheme

Emitters of greenhouse gases need to acquire a permit for every tonne of greenhouse gas that they emit.

The quantity of emissions produced by firms will be monitored, reported and audited.

At the end of each year, each liable entity will need to surrender a permit for every tonne of emissions that they produced in that year.

The number of permits issued by the Government in each year will be limited.

Firms will compete to purchase the number of permits that they require. Firms that value the permits most highly will be prepared to pay most for them, either at auction or on a secondary trading market. For some firms, it will be cheaper to reduce emissions than to buy permits.

Certain categories of firms will receive an administrative allocation of permits, as a transitional assistance measure. Those firms could use the permits or sell them.

As well as driving actual emissions reductions, the introduction of a carbon price provides a financial incentive for investment in low emissions technology research, development and commercialisation. Investment in technological solutions that reduce greenhouse gas emissions has the potential to deliver high financial returns to those sectors with a high cost of abatement. These sectors have a strong incentive to reduce their exposure to a carbon liability.

A carbon cap should also lead to consumer behavioural changes that support a lower carbon economy. For example, higher electricity prices will provide an incentive for consumers to conserve energy in their homes.

The implications of the Scheme will be significant. Placing a limit, and hence a price, on emissions has the potential to change the things we produce, the way we produce them, and the things we buy.

#### Essential elements of a cap and trade scheme

In a cap and trade scheme, aggregate emissions are capped at a level that is consistent with the environmental objective. There are several different types of greenhouse gases and many different sources of emissions across the Australian economy. The Scheme coverage establishes what types and sources of emissions are subject to the cap.

The cap sets a limit on the aggregate annual emissions from all the covered types and sources of emissions.

The level of the Scheme cap determines the environmental contribution of the Scheme: the lower the cap, the more abatement that must occur. The actual cap and the scope of coverage can be determined independently. However, broader coverage will reduce abatement costs and therefore allow for more ambitious emissions caps.

The number of tradable carbon pollution permits will be equal to the Scheme cap—if the cap were to limit emissions to 100 million tonnes of carbon dioxide equivalent ( $CO_2$ -e) in a particular year, 100 million emissions permits would be issued for that year.

Entities responsible for emissions sources covered by the Scheme will be obliged to surrender a permit for each tonne of CO<sub>2</sub>-e that they have emitted during the compliance period.

A common misconception is that the Scheme will set limits on emissions for individual companies or facilities, and that companies will be able to sell permits if they emit less than their limit, or must buy permits if they emit more. This is not the case. The limit on emissions applies to all covered emissions sources—there is no limit on emissions from individual sectors, firms or facilities. Companies are free to emit at whatever level they choose, as long as they surrender an eligible compliance permit for every tonne of those emissions at the end of the compliance period. Companies may or may not have received some compliance permits free of charge, but that does not change this basic compliance rule in any way.

Carbon pollution permits will be tradable and the price of permits determined by the market.

The cap will achieve the desired environmental objectives only if it is enforced. This means that entities responsible for emissions covered by the Scheme must monitor and report their emissions and report to the Government. Non-compliance will attract a penalty.

Carbon pollution permits could enter the market either by auction or by administrative allocation. As long as the cap remains unchanged, the way permits enter the market does not significantly affect the abatement outcome. Whether a company receives carbon pollution permits for free or purchases them in the market, it will face the same incentives. Companies are likely to be willing to pay for permits if their internal costs of abatement are higher than the price of permits and to directly reduce their emissions if their internal costs of abatement are lower than the price of permits. Companies which own permits would be willing to sell them if the revenue received from selling permits exceeds the profits from using them. A company perspective is illustrated in the box below.

#### A company perspective

Different companies will have different abatement costs and opportunities. Under the Scheme, the decision whether to emit or abate will differ from company to company. Consider an example where the market price for a carbon pollution permit is \$25.

Company A can reduce its emissions for a cost of \$20 per tonne of emissions. Its cost of abatement is lower than the market price for a permit. If the company had permits, it would sell them. If the company had no permits, it would be cheaper for the company to abate than to buy a permit so that it could emit.

Company B can reduce emissions for a cost of \$50 per tonne of emissions. Its cost of abatement is higher than the market price for a permit. If the company had permits, it would use them and emit. If the company had none, it would buy them in the market so it could emit.

These market incentives work to move the permits to the highest value use and to encourage the cheapest abatement to occur first. The ability to trade Australian carbon pollution permits ensures that the emissions cap is achieved at least cost to the economy.

The introduction of a carbon price will change the relative prices of goods and services, making emissions-intensive goods more expensive relative to those that are less emissions intensive. This provides a powerful incentive for consumers and businesses to adjust their behaviour, resulting in a reduction of emissions.

#### Scheme coverage

The Government has announced that the Scheme should have maximal practical coverage of greenhouse gas emissions and sectors. Maximal Scheme coverage is a key element in minimising the overall cost to the Australian economy of achieving emissions reductions. It will increase opportunities for low cost emissions reductions and ensure that the cost of achieving these reductions is shared equitably across the economy. Broad coverage will also ensure that competing firms and sectors operate within equivalent market rules.

The Scheme will cover around 75 per cent of Australia's emissions and involve mandatory obligations for around 1000 entities. There are around 7.6 million registered businesses in Australia: the overwhelming majority will not, therefore, face any direct obligations under the Scheme.

The Scheme will cover all six greenhouse gases that are covered under the Kyoto Protocol. Different activities emit different types of greenhouse gases, and these gases differ in their global warming potential—the 'strength' of the greenhouse effect that they create. By covering all of the gases accounted for under the Kyoto Protocol, the Scheme will best encourage the broadest range of cost-effective abatement activities.

The Scheme will have broad sectoral coverage and will cover emission from stationary energy, transport, fugitive, industrial processes, waste and forestry sectors. This will be achieved through a combination of placing Scheme obligations directly on some emitters, and, in other cases, placing obligations further 'upstream' in the production chain, as a way of cost-effectively capturing smaller sources of emissions.

Initially, the Scheme will not cover emissions from agriculture. The agricultural sector is characterised by thousands of small emitters and the calculation of emissions is complex, so it would not be practical at this stage to cover those emissions directly. However, agriculture's eventual inclusion in the Scheme is desirable, if it can be cost-effectively achieved. Commencing in 2009 the Government will undertake a work program to enable it to determine in 2013 whether or not to cover agriculture emissions from 2015.

After careful deliberation the Government does not propose to include deforestation in the Scheme. Australian deforestation emissions have reduced markedly since 1990, largely due to increased protections against land clearing. Given the sporadic nature of remaining land clearing emissions, covering deforestation under the scheme would pose large practical difficulties. It also raises the risk of pre-emptive land clearing.

Offset credits could potentially be created by those sectors not covered by the Scheme. Offsets are credited reductions in emissions, that are purchased by other parties to allow them to increase their own emissions. Offsets cannot be created in sectors already covered by the Scheme—the very broad coverage of the Scheme implies that there is little scope to pursue offset activities, particularly if agriculture is to be included in the Scheme. The Government will consider the scope for domestic offsets in 2013 at the time it considers the inclusion of agriculture. The Scheme will not include domestic offsets from agriculture emissions in the period prior to coverage of these emissions.

The Government will further investigate the opportunity to reduce emissions from savanna burning in Northern Australia and the potential for carbon offsets from this activity. The Government will facilitate the participation of Indigenous land managers in carbon markets and will consult with Indigenous Australians on forestry and other opportunities under the Scheme.

#### The carbon market

The rapid development of a stable, well-informed and efficient carbon market, which is appropriately monitored and regulated to guard against market manipulation, will allow the Scheme to achieve emissions reductions in a cost-effective way.

There are several elements of Scheme design that will contribute to an effective and efficient market.

Carbon pollution permits will be created as personal property, and the legislation implementing the Scheme will not provide any power to extinguish these permits without compensation (except in the case of misrepresentation or fraud). When combined with the issuance of future years' permits, this should help create confidence in the longer term durability of the Scheme.

Permits will be tradable—an important element in seeking cost effective abatement outcomes.

Permits will be able to be banked indefinitely—they will have a vintage, the earliest they can be used—but no expiry date. Liable entities will also have a small borrowing allowance they will be able to meet up to 5 per cent of their liabilities by using the following year's vintage permits. Banking and borrowing help to lower overall Scheme costs (by providing some flexibility over when abatement should occur) and help promote a smoother carbon price path.

In response to the Green Paper, several stakeholders were concerned to ensure that the carbon market would be appropriately structured and regulated to avoid market manipulation. While the likelihood is low, permits, like other financial products, could be the subject of market misconduct, including market manipulation and insider trading. Market manipulation includes manipulation of the auction process (for example, through collusion) and of prices in the secondary market. There is also the possibility of one or more participants attempting to corner the market for permits close to the time for surrender.

To ensure appropriate regulatory oversight is provided, the Australian Securities and Investments Commission (ASIC) will be given the necessary legal power to investigate and prosecute market manipulation in the carbon market. This will be achieved by designating carbon pollution permits and Kyoto units as financial products for the purposes of the *Corporations Act 2001*. Some adjustments to that regime will be necessary to fit the characteristics of permits and to ensure no unnecessary compliance costs. The Government will consult further on these adjustments. The net effect will be that the permit market will be subject to the same effective safeguards as the Commonwealth bond market. Rules will be put in place to provide additional safeguards against individual entities manipulating auctions, and banking and borrowing provisions provide a powerful check against such behaviour. The economy-wide competition provisions of the *Trade Practices Act 1974* will also apply.

#### The carbon price

Seeking to meet national emissions targets through the Scheme will generate an explicit carbon price. The price of carbon will be determined by the balance of supply and demand for permits. The Scheme design incorporates a number of internal stabilisers and constraints on carbon prices. Pricing volatility, and upside price risk, will be reduced by:

- widespread coverage, as excluding sectors will push up the cost on the economy
- the ability to bank (i.e. save) and borrow permits, which can help promote a smoother carbon price path
- a ban on the export of permits in the Scheme's initial years, to reduce upward price pressure on the Scheme
- unlimited access to international abatement delivered through the Kyoto Protocol's projectbased flexibility mechanisms, which acts to cap permit prices and total Scheme costs
- a transitional cap on the price of permits which provides a further safety valve for the Scheme.

One of the outputs of the Treasury modelling was a time profile for carbon prices for different scenarios. It is important to recognise that the Treasury modelling focuses on the medium to long term economic impacts of policies to reduce emissions. It does not attempt to predict short term international emission prices.

The Treasury modelling suggests that, in the context of efficient market-based global action to stabilise greenhouse gas concentrations at 550 ppm, the initial emission price in 2010 could be around A23/t CO<sub>2</sub>-e in nominal terms. Stabilising at lower concentration levels requires faster cuts in global emissions and higher emission prices. The starting price is 40 per cent higher to achieve 510 ppm and 110 per cent higher to achieve 450 ppm. Consistent with the target range chosen, the Government has decided to set a price cap for five years, of \$40 per tonne at Scheme commencement, rising at five per cent real per annum.

These emission prices are lower than prices currently observed in some emission markets, particularly the European Union Emission Trading Scheme (EU ETS). Higher current prices in the EU market reflect its more limited coverage and restricted access to international trade as compared to the modelled scenarios. The modelling assumes broad coverage of regions and sectors, allowing far more low cost mitigation opportunities to be captured than in the EU ETS.

If there are no restrictions on international emissions trade, Australia's emission price will be determined by the global price. In the scenarios the Treasury has modelled, Australia's emission price is equal to the global price, with an allowance for changes in the exchange rate.

Reflecting that the actual carbon price will be determined by the market, assistance to business and households has been based on an assumed initial carbon price of \$25 per tonne of  $CO_2$ -e, broadly consistent with the Treasury modelling. Each year the Government will review the adequacy of the household assistance package in the context of the Budget.

#### Setting Scheme caps

The Scheme cap determines the number of permits that will be issued by the Government. 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 units, additional domestic permits issued as a result of forestry activities, additional permits issued under the price cap mechanism or, if eventually allowed, Scheme offsets.

The Government will specify Scheme caps for at least five years in advance. In addition, up to a further 10 years of guidance will be provided through the establishment of 'gateways' or ranges within which future Scheme caps will lie. To maintain five years' guidance, Scheme caps will be extended by one year, every year. Gateways will be extended for five years, every five years.

The first five years of Scheme caps will be announced in 2010, before the Scheme commences and after the Copenhagen meeting of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol.



# Figure E.1: Scheme cap following the Copenhagen conference of the Parties to the UNFCCC

#### International linkages

The Scheme has been designed to be able to link with international carbon markets. As demonstrated by the Final Garnaut Report and the Treasury modelling, access to an international carbon market can play an important element in reducing the overall costs of the global (and Australian) mitigation effort.

An international carbon market already exists under the Kyoto Protocol. The Kyoto Protocol creates three 'flexibility mechanisms':

- the clean development mechanism, for offset projects in developing countries
- the joint implementation, for offset projects in developed countries
- international emissions trading, which allows trade in developed countries' emissions allocations, as well as the units from the two project based mechanisms.

Opportunities for linking are likely to increase substantially over time, as different countries introduce their own emissions trading schemes. Growth in international carbon markets presents opportunities for Australia by broadening the abatement opportunities for liable parties and by extending the market for Australia's own abatement.

Consistent with the Green Paper, the Government will allow entities to use eligible Kyoto units for compliance with Scheme obligations, in particular the two project based mechanisms.

The Government has decided that no quantitative restrictions will apply to the use of eligible Kyoto units for compliance in the Scheme. This is a modification of the position contained in the Green Paper, which proposed that a quantitative limit should be set. Having taken into account stakeholder feedback, and having conducted further analysis, the Government considers that the implementation risks of a lack of quantitative restrictions are low. These risks are outweighed by the benefits of having an additional form of safety valve on compliance costs, and more active participation in global carbon markets.

As a way of reducing potential upside price risk, no exports of carbon pollution permits will be allowed, and would only be introduced with five years' notice. However, if Australia were to enter into a bilateral linking arrangement with another country (say, New Zealand), exports would be required. Such a link could be entered into with less than five years' notice where this was unlikely to lead to a significant change in carbon prices.

#### Auctioning carbon pollution permits

The Government will auction the majority of the Scheme's carbon pollution permits. Auctioning is the most efficient way of distributing permits, since they will be bought by those who value them most highly. However, some permits will also be administratively allocated, in order to address the transitional challenges raised earlier.

The Government has fully delivered on its commitment that every cent raised for the Australian Government from the Scheme will be used to help Australians—households and businesses—adjust to the Scheme and to invest in clean energy options. The full Budget package is outlined at the end of this Executive Summary and in Appendix E.

#### Assistance for emissions-intensive, trade-exposed industries

Introducing a carbon price in Australia ahead of some other countries could risk carbon leakage occurring—that is, activities could move from Australia to elsewhere, with no benefit in terms of global emissions reductions. Activities most at risk of carbon leakage are those that are trade exposed and highly emissions intensive.

The decision as to where to place investment and undertake production is a complex one, involving judgements about a range of factors including access to resources, skilled labour, infrastructure, security of energy supply, political stability and other more intangible issues. As such, the absence of a carbon constraint on companies producing elsewhere will not automatically lead to carbon leakage from Australia—indeed, the Treasury modelling suggests that this risk is low and work by the IEA suggests there has been little carbon leakage from Europe since the introduction of the EU ETS.

Nevertheless, the Government intends to guard against the risk of carbon leakage and provide some transitional assistance that will help protect jobs in these important industries while also encouraging these industries to make a contribution to Australia's emissions reductions.

The Green Paper proposed providing assistance to emissions-intensive, trade-exposed industries (EITE industries) in the form of an administrative allocation of permits, linked to the EITE industry's output.

Intense stakeholder debate has occurred on this matter since the release of the Green Paper there has been little challenge to the notion of support, but considerable debate as to the appropriate form and quantum. This White Paper broadly confirms the rationale, key principles and elements of the framework outlined in the Green Paper. However, the quantum of assistance to emissions-intensive trade-exposed industries has been significantly increased to further smooth the transition. Stakeholder feedback and further analysis has also led to a number of changes on matters of assistance design, including the method for assessing eligibility for assistance.

#### Approach to EITE assistance—principles

A number of principles have guided the development of the EITE assistance program. These principles are:

- Assistance should be targeted to reduce the likelihood of carbon leakage and to provide transitional assistance: In practice, it is extremely difficult to identify which activities are most at risk of carbon leakage compared to the range of factors that influence locational decisions. As a result, the Government has concluded that it is appropriate to be more inclusive in the approach to defining activities eligible for EITE assistance. The Government will retain the rules based approach proposed in the Green Paper. Assistance will be targeted at activities that are highly emissions intensive, and which are trade exposed. Trade exposure will be defined by having a trade share (defined as the ratio of the value of imports and exports to the value of domestic production) of greater than 10 per cent in any year between 2004-05 and 2007-08, or a demonstrated lack of capacity to pass through costs due to the potential for international competition. Emissions intensity will be measured on the basis of the emissions-to-revenue or emissions-to-value-added of activities being above nominated thresholds.
- Assistance should not reduce carbon price signals: Providing assistance on the basis of actual activity-level emissions would provide a powerful incentive for firms to avoid reducing their emissions, undermining the effect of the carbon price signal. For this reason, allocations will be made on the basis of the output of an entity conducting an EITE activity, according to the industry's historic average emissions intensity per unit of production. The use of historic data preserves incentives to improve emissions intensity— allocations will not be reduced in the event that actual emissions subsequently decline. Basing allocations on industry averages, rather than individual entities' emissions intensity, means that less emissions intensive entities will have an advantage over their more emissions intensive rivals. This provides some recognition for early action to reduce greenhouse gas emission and encourages emitters to actively pursue abatement since subsequent actions to reduce emissions do not affect the extent of support provided. Scaling assistance to production not only preserves carbon price signals, but explicitly links the assistance to the carbon leakage objective and supports the future growth of EITE activities.
- Assistance to EITE industries should be balanced against the need to assist other businesses and households: allocating permits to entities conducting EITE activities means that there are fewer permits available to auction, which means that less funding is available to provide assistance for households and other businesses. Also, the provision of EITE assistance (and the support of production in EITE industries) can lead to higher electricity prices than otherwise, and a greater likelihood for the need to import international units to

meet Australia's international emissions obligations, which reduces national income (Gross National Product).

• Assistance should not breach Australia's international trade obligations: any assistance should not breach Australia's obligations as a member of the World Trade Organisation and a party to the Agreement on Subsidies and Countervailing Measures, and a number of bilateral free trade agreements.

#### **Overview of EITE assistance**

The mechanics of EITE assistance have been modified in several respects compared with the positions in the Green Paper.

One significant modification is the extension of assistance to activities at a lower level of emissions intensity. Two rates of assistance were proposed in the Green Paper—90 per cent for activities that had at least 2000 t  $CO_2$ -e per million dollars of revenue, and 60 per cent for activities that had at least 1500 t  $CO_2$ -e per million dollars of revenue. The White Paper extends the lower level of assistance to activities that have at least 1000 t  $CO_2$ -e per million dollars of revenue. The White Paper extends the lower level of assistance to activities that have at least 1000 t  $CO_2$ -e per million dollars of revenue. These rates of assistance ensure that all entities will bear a proportion of the carbon cost that they face.

The second significant change in the EITE package is to provide an additional route for determining eligibility. Where the Green Paper proposed that the assessment of eligibility would be only on the basis of the ratio of emissions-to-revenue of an activity, the White Paper provides the choice of using revenue or a value-added based measure of emissions intensity. (A different threshold for assistance would apply to each to provide broad equivalence in impact.)

The third significant change is the expansion of the emissions and costs in respect of which assistance is provided. The Green Paper only proposed that assistance be provided in respect of an activity's direct emissions and for the indirect emissions associated with its use of electricity. The White Paper expands this list to include emissions from the use of steam, and emissions associated with the extraction and production of natural gas and its derivatives such as methane and ethane when used as a feedstock.

Fourth, stakeholders pointed out that the use of a short period of data (the Green Paper proposed two years) for eligibility assessment may lead to non-representative results, given variations in commodity prices. The Government has thus decided to use a longer time series of data: four and a half years from 1 July 2004 to 31 December 2008, for the EITE activity eligibility assessment.

Fifth, the Green Paper suggested that the rate of assistance provided to EITE entities should decline to keep the share of permits provided to EITE industries broadly stable over time. The White Paper confirms that the rate of assistance to EITE industries will decline over time. The rate of decline—the carbon productivity contribution of the EITE sector—will be set at 1.3 per cent which is broadly in line with the rate of reduction in the national cap for the 5 per cent below 2000 trajectory. This is likely to imply that the share of permits provided to EITE industries will increase over the first 10 years of the Scheme. The application of the carbon productivity contribution to EITE industries partly reflects the expectation that these industries, like other areas within the economy, will reduce the emissions intensity of their
operations. (Historically, EITE industries have achieved reductions their emissions intensity—this trend is likely to continue.) In the event of global agreement five years' notice would be given to withdraw assistance.

Finally, in the Green Paper the Government did not propose an 'electricity allocation factor' that would determine how many tonnes of emissions would be included in the allocation baseline for every megawatt hour of electricity consumed. The purpose of the allocation in respect of electricity is to offset, in part, the increase in electricity costs associated with the Scheme. The White Paper sets this electricity allocation factor at 1t CO<sub>2</sub>-e per megawatt-hour. The electricity factor has been determined on a relatively generous basis.

# Assistance to emissions-intensive trade-exposed industries

The Government will provide assistance to emissions-intensive trade-exposed industries to reduce the risk that industries will relocate offshore due to competition from countries without carbon constraints and to provide general transitional assistance towards a carbon constrained economy.

The combined effect of these measures is to increase the total amount of assistance that will be provided to entities conducting EITE activities. At the start of the Scheme, it is estimated that EITE industries will be allocated around 25 per cent of total carbon pollution permits (equivalent to around 35 per cent if agriculture were included in the Scheme). If EITE industries grow at the same rate as the rest of the economy, this is likely to rise to around 45 per cent by 2020. In contrast, in the Green Paper it was expected that assistance to EITE industries would commence, and remain, at equivalent to around 30 per cent of the total permit pool.

The Government has balanced the concern of the emissions-intensive trade-exposed sector with the fact that more assistance for these sectors reduces the Government's capacity to assist households and other businesses. Accordingly the rate of assistance per unit of output will be gradually reduced over time.

A common misconception about the EITE framework is that it provides a 'cap on growth' for EITE activities. This is not, and never has been, the case. In both the Green and White Paper formulations, new entrant or brownfields expansions are entitled to the same rate of EITE assistance as existing entities, the rate of assistance is pre-specified based on the initial assistance rate and the carbon productivity contribution. Given new entrants' access to the latest technological developments, this is likely to present them with an advantage compared with their incumbent rivals, unless the incumbent also invest in upgrading their plant. No adjustment will be made to the rates of assistance for either new or existing entities conducting EITE activities to account for these new entrants. All allocations will be made on the basis of production levels. This means that if an individual EITE entity's production doubles, then the number of permits that it receives will also double.

# Allowing for growth

Growth in existing production and new investments will receive assistance at the same rate. The assistance program provides for the growth of the emissions-intensive trade-exposed sector. If output from the emissions-intensive trade-exposed sector doubles, then the allocation of permits will also double.

The mechanics of the EITE assistance package is set out in table below.

Feature	Policy			
Form of assistance	Allocation of permits at the start of each compliance period			
	Based on individual entity's previous year's level of production			
	Upon closure, must relinquish permits for production that did not occur in that year			
Basis of assistance	Provided to new and existing entities undertaking eligible EITE activity prescribed in regulations			
Scope of assistance	Direct emissions covered by the Scheme			
	Scheme related cost increase for electricity and steam use			
	Scheme related cost increase for upstream emissions from natural gas and its components (e.g. methane and ethane) used as feedstock			
Eligibility for	Eligibility of activity based on an assessment of all entities conducting an activity			
assistance	Trade exposure assessed through quantitative and qualitative tests			
	Emissions intensity assessment based on average emissions per million dollars of revenue or emissions per million dollars of valued added			
	Time period for assessment:			
	emissions data: 2006-07 to 2007-08			
	revenue/value added data: 2004-05 to the first half of 2008-09			
Initial rates of assistance	90% for activities with emissions intensity of at least 2000t CO2-e/\$m revenue or 6000t CO2-e/\$m value-added			
	60% for activities with emissions intensity between 1000t CO2-e/\$m and 1999t CO2-e/\$m revenue or between 3000t and 5999t CO2-e/\$m value-added			
Carbon productivity contribution	Initial rates of assistance will be reduced by a carbon productivity contribution of 1.3 % per annum			
Allocative baselines	Allocative baseline for activity based on historic industry average level of emissions per unit of production for all entities conducting activity			
	Electricity allocation factor set at 1t $CO_2$ -e per MWh nationwide, may be adjusted in respect of existing large electricity supply contracts			
	Natural gas feedstock allocation factor set state by state			
New entrants	New entities conducting an existing EITE activity will receive the same assistance as existing entities conducting the activity			
	Activities new to Australia will be able to apply for EITE eligibility assessment and baselines made on the basis of international best practice			
	Allocations to existing entities conducting EITE activities will not be adjusted for allocations to new entrants			
Quantum of assistance	Government expects allocations to EITE sector to be around 25% initially (35% including agriculture), increasing to around 45% by 2020			
Review of assistance	EITE assistance program to be reviewed by independent body at each five year review point, or at request of Minister			
	Review would consider:			
	inclusion of additional activities in light of commodity price changes and expansions in Scheme coverage			
	consistency of EITE program with overall rationale and principles			
	existence of broadly comparable carbon constraints applying internationally			
	Five years' notice of any changes to EITE assistance program to be provided, unless required for compliance with Australia's international trade obligations			

Table E.2: Summary of EITE assistance

The Government has decided that the EITE assistance program will be reviewed at each five yearly review or at another date at the request of the responsible minister. The intent of the EITE assistance program review will be to provide advice to Government on fine tuning the assistance program. In reaching conclusions, the review will be expected to consider issues such as the actual experience with the Scheme, international developments—including the extent to which major partners or competing countries have introduced carbon constraints. The review will advise as to whether modifications should be made to the EITE assistance program, including whether assistance should be withdrawn.

The Government has also decided to include a provision that, once the Scheme has commenced, firms may make representations to the Government to request that the Government commission the Productivity Commission to undertake an assessment of the Scheme impact on their industry. The Government will not necessarily refer all requests to the Commission; it will take into account the nature and details of the request.

# Strongly affected industries

This White Paper confirms the position in the Green Paper that only coal-fired electricity generation will receive support as a strongly affected industry, as this sector:

- is not trade-exposed
- is emissions intensive (exceeding the thresholds for emissions intensity used for EITEs)
- includes some entities that are emissions-intensive compared with their competitors, such that they cannot pass on carbon costs, and so could experience significant losses in asset value
- has significant sunk capital costs
- does not have significant economically viable abatement opportunities available to them.

Some coal-fired electricity generators are unlikely to be able to pass on their full carbon costs, because they are constrained by competing generators with a lower emissions intensity. As the carbon price rises, the competitive position of the most emissions intensive coal-fired generators is reduced, resulting in margin compression and lower generation volumes, reducing profits. This is likely to lead significant impacts on the asset values of some coal-fired electricity generators.

Estimating the impact of the Scheme on individual power stations is inherently difficult. It requires both an estimation of what will occur under the Scheme, and also what would have occurred in the absence of the Scheme. These estimates are sensitive to the assumptions used. Modelling undertaken for the Government has indicated that some coal-fired generators could experience significant reductions in their profitability, with the most emissions-intensive generators likely to be the most adversely affected.

In recognition of this impact, and to ameliorate the risk of adversely affecting the investment environment in the Australian electricity generation sector, the Government will provide a once-and-for-all allocation of permits to the most emissions-intensive electricity generators under the Electricity Sector Adjustment Scheme. The Government has decided to provide a fixed administrative allocation of permits, delivering assistance of around \$3.9 billion to the most emissions-intensive coal-fired generators based on an initial carbon price of \$25 per tonne. These permits will be distributed to each eligible generator over the first five years of the Scheme. The amount of assistance for each generator will be determined up front, before Scheme commencement.

Not all coal-fired electricity generators will receive assistance, since not all generators are likely to experience significantly adverse effects. Assistance will be determined in relation to the historic energy output of the power station between 1 July 2004 and 30 June 2007, and the extent to which the generator's emissions intensity exceeds the 'threshold' level of emissions intensity of  $0.86 \text{ t } \text{CO}_2$ -e/MWh generated, which is the average emissions intensity of all fossil-fuel based generation. These factors represent simple and transparent mechanisms to deliver appropriately calibrated support to those most likely to be affected by the Scheme.

A number of stakeholders raised concerns that allocating permits to electricity generators would allow them to earn windfall profits. The quantum and targeting of assistance has been designed to avoid this outcome. However, to ensure that assistance does not lead to windfall gains, a review will be held in 2013 to determine whether generators in receipt of ESAS assistance are likely to earn windfall profits, taking into account actual and forecast net revenues, compared to those predicted when assistance was originally estimated. Where the regulator finds that windfall gains are likely, it can make a recommendation to the minister to withhold all or part of the last two years of assistance. A finding by the regulator that windfall gains are likely may be challenged in the Administrative Appeals Tribunal.

# Impacts of the Scheme on energy security

A number of generators argued that assistance was essential to avoid threats to the security of electricity supply.

However, the Government considers that the combination of the commercial and regulatory features of Australia's electricity markets, combined with other Scheme parameters such as the gradual reduction in emissions imposed by the medium term target range, unlimited access to certain international emissions credits, and a price cap, will be sufficient to ensure that energy security will be able to be maintained during the transition to lower emissions technologies.

The energy market bodies - the market operator (the National Electricity Market Management Company, NEMMCO), the market rule maker and policy adviser (the Australian Energy Markets Commission - AEMC) and the market regulator (the Australian Energy Regulator—AER), considered the broader Scheme design and the ESAS package and concluded that the risks to energy security have been significantly mitigated. The AER noted that they consider the risks of Scheme-related plant shutdown are low. The ESAS assistance was considered an important mitigating factor, with the AEMC commenting that the exogenous contribution to capital of \$3.9 billion, targeted at the most emissions-intensive plant, significantly reduces financial risks that might impact on operational decisions by generators.

However, to provide additional assurance against the risks of premature withdrawal of capacity and consequent risks to energy security, the allocation of permits to coal-fired generators will be conditional on the recipient retaining the same level of generation capacity as at 3 June 2007, unless the relevant market operator assesses that retiring the capacity would not cause or add to a reserve capacity shortfall during the subsequent two year period.

### Assistance to emissions-intensive coal-fired electricity generators

The Government will provide assistance to emissions-intensive coal-fired electricity generators to support a positive investment environment in the electricity sector.

Assistance will be targeted at the most emissions-intensive generators as they are unlikely to be able to pass on the full costs of the permits they must buy.

The assistance is 'once and for all', so will not compromise the environmental objective of the Scheme as generators will need to allow for the full carbon price when deciding whether to generate and sell electricity into the market.

The Government has consulted with the three energy market bodies who have considered the broader Scheme design and the ESAS package and concluded that the risks to energy security have been significantly mitigated. The Australian Energy Regulator noted that they consider the risks of Scheme-related plant shutdown are low. The ESAS assistance was considered an important mitigating factor, with the Australian Energy Market Commission commenting that the exogenous contribution to capital of \$3.9 billion, targeted at the most emissions-intensive plant, significantly reduces financial risks that might impact on operational decisions by generators.

# Transforming the energy sector

An enormous challenge lies ahead to transform Australia's energy sector. The Scheme will play a major role, creating powerful commercial incentives to avoid traditional high-pollution solutions and to adopt low-pollution alternatives. However, the scale of the transformation is so large, the barriers to change are so high, and the imperative to change so pressing, that additional measures are required.

The Government is driving the transformation of the energy sector through a range of measures supporting renewable energy and carbon capture and storage.

Renewable generation will play a key role in the future of Australia's energy supplies. The Renewable Energy Target requires 20 per cent of Australia's electricity to be sourced from renewable generators by 2020. This will require the rapid, large scale deployment of renewable technology, and will significantly reduce the emissions intensity of Australia's electricity supply.

Renewable energy is being further supported though the \$500 million Renewable Energy Fund, which will help to reduce the cost of demonstrating and deploying key energy technologies that may play a critical role in energy supply and security over the next few decades.

In the longer term, coal-fired generation will be able to play a major role in Australian and global energy markets provided its emissions intensity can be dramatically reduced. Carbon capture and storage (CCS) is one key technology that could allow coal to continue to play a major role in the world's energy supplies in a carbon constrained environment.

The Government recognises that ongoing support will be needed to drive the development and deployment of CCS technology internationally. To this end, the Government has already

made substantial financial commitments to promote CCS technology. This funding will have the corollary benefit of assisting Australia's coal-fired generation industry, and the regions in which they are located, to adjust to the long term impacts of the Scheme.

In September 2008, the Australian Government announced the Global Carbon Capture and Storage Initiative, and a proposal to fund up to \$100 million per annum towards a new Global CCS Institute. This initiative will help coordinate and drive the concerted global effort called for by global leaders. The Government is also supporting a range of CCS related projects with key international partners, including China, through the Asia-Pacific Partnership on Clean Development and Climate.

This is on top of existing funding programs, such as the provision of \$500 million over eight years to support the National Low Emissions Coal Initiative through the National Low Emissions Coal Fund.

Further, the Australian Government is enabling offshore CCS projects through a new legislative framework, clarifying rights and responsibilities in this area, the *Offshore Petroleum Amendment (Greenhouse Gas Storage) Act 2008*, which passed in late 2008.

Support for both CCS and renewable energy will have important implications for regional development and jobs. Funding for CCS and the reduction of coal mine methane helps foster a sustainable future for coal mining regions and workers. Many renewable energy projects will also be regionally based.

# Household assistance

Carbon costs will be incorporated in the prices of goods and services, and will ultimately be borne by consumers. The Government has recognised this impact, and is providing a substantial package of measures to help households adjust to the impacts of the Scheme. The total size of this assistance package is estimated to be \$6.0 billion in 2011-12.

# Impact on households

Under the scheme the permit price will be determined by the market. Assistance for households has been based on an assumed carbon price of \$25 (nominal) in 2010-11. A permit price of \$25 is broadly consistent with an emission target of 5 per cent below 2000 levels by 2020. The scheme will affect Australian households, but the impact will be modest. At a carbon permit price of \$25, the cost of living is estimated to increase by 1.1 per cent in 2010-11.

To the extent that households reduce their consumption of goods whose relative prices have risen and increase their consumption of goods and services whose relative prices have decreased, then the real impact on households would be expected to be lower.

The carbon price will have the greatest impact on emissions-intensive goods, such as electricity, gas and other household fuels. Electricity prices are estimated to increase by around 18 per cent and gas prices by 12 per cent. Across all households, this would lead to an average increase in spending of \$4 per week on electricity and \$2 per week on gas and other household fuels.

# Household assistance measures

In the Green Paper, the Government made a range of commitments to assist low- and middle-income households. These commitments will be honoured so that:

- pensioners, seniors, carers and people with disability will receive additional support, above indexation, to fully meet the expected overall increase in the cost of living flowing from the Scheme
- low-income households will receive additional support, above indexation, to fully meet the expected overall increase in the cost of living flowing from the Scheme
- middle-income households will receive additional support, above indexation, to help meet the expected overall increase in the cost of living flowing from the Scheme. For middle-income families receiving Family Tax Benefit Part A, the Government will provide assistance to meet at least half of those costs
- low- and middle-income working households will also receive a tax cut to assist with the expected overall increase in the cost of living flowing from the Scheme
- motorists will be protected from higher fuel costs from the Scheme by 'cent-for-cent' reductions in fuel tax for the first three years.

Key features of the household assistance package are:

- pensioners, seniors, carers and people with disability will receive a 2.5 per cent pension increase (including upfront indexation) an increase of around \$382 for singles and \$320 for each member of a couple, based on current arrangements
- self-funded retirees will receive an upfront increase in the Seniors Concession Allowance of around \$382 for singles and \$320 for each member of a couple, based on current arrangements
- recipients of allowance benefits will receive an increase of 2.5 per cent (including upfront indexation) an increase of up to \$307 for singles, and up to \$276 for each member of a couple (based on current Newstart Allowance arrangements—they will be different for other allowance type income support payments)
- low and middle income families will receive one or a combination of:
  - an increase of \$390 in the Low Income Tax Offset
  - an increase in the maximum rate of the Family Tax Benefit Part A of 2.5 per cent (including upfront indexation) an increase of \$124.10 per child (child aged 0-12 years) and \$156.95 per child (child aged 13-15 years), based on current arrangements
  - an increase in the base rate of the Family Tax Benefit Part A of \$115 per child (child aged 0-17 years) and \$140 per child (child aged 18-24 years), based on current arrangements

- an increase in Family Tax Benefit Part B of 2.5 per cent (including upfront indexation) an increase of \$98.55 per family (child aged less than 5 years) and \$73 per family (child aged over 5 years), based on current arrangements
- an increase of \$150 in the Dependency Tax Offsets
- a \$500 transitional payment per adult for low-income households and others who can show they will not be assisted in accordance with the Government's commitments.
- around 89 per cent of low-income households (or 2.9 million households) will receive assistance equal to 120 per cent or more of their cost of living increase
- around 97 per cent of middle-income households will receive some direct cash assistance. Around 60 per cent of all middle-income households (or 2.4 million households) will receive sufficient assistance to meet their cost of living increase.

Each year, the Government will review the adequacy of the household assistance package in the context of the Budget.

# Fuel tax adjustment arrangements

In the Green Paper, the Government committed to cutting fuel taxes on a cent-for-cent basis to offset the initial price impact on fuel associated with the introduction of the Scheme and to assist certain businesses. To honour this commitment the Government will cut fuel taxes based on the effect of pricing diesel emissions and review the adequacy of the cut every six months for three years. At the end of the three years the adjustment mechanism will be reviewed. Reductions in fuel tax made during this transition period will become permanent after three years.

The Government will also introduce a new 'CPRS fuel credit' payment equal to the fuel tax cut to agriculture and fishing businesses for three years and to heavy on-road transport businesses for one year. A credit will also be provided to compressed natural gas (CNG) and liquefied natural gas (LNG) that are predominantly used in Australia by heavy transport—the credit for these fuels will be provided for one year (as for other heavy transport). A credit will also be provided to liquefied petroleum gas (LPG) for three years. The credits for LPG, CNG, and LNG will be provided at rates that reflect the lower emissions of these three fuels. These measures will be reviewed at the time that each of these measures is due to cease. The total estimated cost of the fuel tax measures is \$2.4 billion in 2010-11.

# Interactions with the Pension Review and the Review of Australia's Future Tax System

The household assistance package intersects with two existing reviews: the Australia's Future Tax System Review (AFTS), and the Pension Review.

To guide development of the household package, the Government sought advice from the AFTS Review Panel to minimise policy complications and possible constraints on future reform directions. Its guiding principles helped in designing the assistance package.

In the event that any future changes to the tax and transfer system alter the mechanisms for delivery of direct household assistance, the durability and amount of assistance provided to low- and middle-income households will be preserved.

# **Energy efficiency**

By becoming more energy efficient, households can reduce the cost impacts of the Scheme. Prior to the commencement of the Scheme, the Government will deliver household energy efficiency initiatives building on existing programs to help households do their bit to tackle climate change and reduce energy bills.

# Additional assistance for industry, workers and communities

The Government recognises that the need for adjustment assistance is broader than for the EITE industries, coal-fired electricity generators and households. There is a need for information and practical assistance in changing business practices across a range of industries.

Transforming Australia's economy to a low carbon future will create new opportunities for some regions and groups of workers, but pose risks for others. The challenge will be to help transition regions and workers into the sustainable jobs of Australia's low carbon future. The Government will provide the assistance necessary to promote such a smooth and equitable adjustment.

Community sector organisations will also need assistance to manage the costs of the Scheme to conduct their activities for the benefit of the community.

# **Climate Change Action Fund**

The Government will establish a \$2.15 billion Climate Change Action Fund over five years to smooth the transition for businesses, community sector organisations, workers, regions and communities to an operating environment that includes a price on carbon. An additional \$300 million will be provided as part of the coal adjustment stream.

The Fund will comprise four streams of activity in the box below.

# **Climate Change Action Fund streams of activity**

# **Stream 1: Information**

This stream will focus on informing business and community service organisations about the operation of the Scheme and how to manage the expected financial impacts. It will also assist to address information failures that impede the uptake of low emission practices and processes and energy efficiency opportunities.

# Stream 2: Investment in Energy Efficiency and Low Emissions Technologies

This stream will comprise three measures to provide funding for low emission technologies and processes and high energy savings projects:

*Small Business Capital Allowance* to assist investment in energy efficiency enhancing equipment (e.g. hot water, insulation, lighting, motor and drives, combined heat and power, heating, ventilation and air conditioning, and refrigeration equipment) that meets established energy saving criteria. Priority will be given to those small businesses that are not eligible for other forms of assistance.

*Community Organisation Capital Allowance* to provide small community organisations with assistance to invest in energy efficiency equipment that meets established energy saving criteria.

*Innovation in Climate Change* to provide competitive grants funding for low emission technologies, production methods, supply chain improvements or products; and high energy savings projects with long pay back periods. Priority will be given to those businesses that are not eligible for other forms of assistance recognising or receive the lower rate of EITE assistance recognising that there may be other situations where assistance is warranted.

# Stream 3: Structural Adjustment Provision for Workers and Communities

The third CCAF stream will provide structural adjustment assistance in the event that workers and communities are disproportionately imposed by the introduction of the Scheme.

The Government will closely monitor the impact of the Scheme on workers, communities and regions and stands ready to provide assistance where a clear identifiable and significant impact arises or is highly likely to arise as a direct result of the Scheme.

# **Stream 4: Coal Sector Adjustment**

Coal mine operations with high fugitive emissions have been identified as an industry sub-sector that will not be eligible for other forms of Scheme assistance. Adjustment assistance of up to \$250 million over 5 years will be provided to affected coal mining operators to promote emissions abatement A further \$500 million over five years will be provided as direct assistance to gassy coal mines to assist them adjust while they explore abatement opportunities.

A stakeholder Consultative Committee comprising business, environmental and community stakeholders will be established to provide their advice to Ministers about the detailed design and implementation of activities under the Climate Change Action Fund. The committee will also provide their perspectives and advice to Ministers about the operational aspects of the regulator of the Scheme. The committee is expected to be convened early in 2009 and to continue until the Scheme commences, at which time consultative arrangements will be reviewed to ensure an appropriate focus on Scheme operation to meet changing needs. The committee will be separate from the independent expert advisory committees which will be formed to undertake strategic reviews of the Scheme at least every five years.

# Scheme governance and implementation

The guiding principle that has been used to design governance arrangements for the Scheme is to provide as much certainty and predictability for regulated entities and the market as is practicable, while retaining an appropriate degree of flexibility for the Government to adjust the Scheme in response to changed circumstances.

The Scheme will be established by legislation and associated regulations. These will set out key scheme features, such as the medium-term target range, scheme caps, scheme coverage, rules for permit allocation, penalties for non-compliance and the safety valve.

The administration of the Carbon Pollution Reduction Scheme, the National Greenhouse and Energy Reporting System, and the Renewable Energy Target will be combined under a single independent regulator. Integration of these functions is expected to improve regulatory outcomes, streamline administration of related legislation and reduce regulatory burdens. Key functions of the regulator in relation to carbon pollution include enforcing compliance, maintaining the registry of domestic and international units, auctioning permits, and administering the permit allocation rules set out in legislation and regulations.

An independent expert advisory committee will be convened to conduct strategic reviews of the Scheme, with the first review to be completed in 2014. The advisory committee will be required to undertake public consultation. Each report will be tabled in parliament and the Government will be required to table its response to any recommendations made by the committee. 'Care and maintenance' reviews may be required in addition to these regular reviews, especially in the early years of the Scheme, to assess the operation of administrative arrangements.

The Government recognises that good scheme design must be underpinned by effective implementation. To minimise implementation risks, preparatory work to establish the regulator has already commenced. An interim regulator will be in place in the first half of 2009 to ensure key personnel and systems are in place well in advance of scheme start. Extensive communication with stakeholders will continue in the lead-up to Scheme start, to ensure that liable entities are ready to comply with the Scheme. A national registry is already under development and is expected to be fully operational in the first quarter of 2010.

The Australian Government expects to receive \$11.5 billion in revenue relating to pollution permits in 2010-11, and \$23.5 billion over the forward estimates. Every cent of this will be used to help households and businesses adjust to the scheme. The net impact on budget, taking into account assistance provided, will be neutral over the forward estimates.

(Appendix E discusses the net impact of the scheme on the fiscal balance and underlying cash balance in more detail.)

	2008-09 \$b	2009-10 \$b	2010-11 \$b	2011-12 \$b
Revenue from the issuing of permits			11.5	12.0
Households Assistance Measures				
Assistance for Low and Middle Income Households			-3.9	-6.0
Fuel Tax Adjustment			-2.4	-2.0
Industry Assistance Measures				
Assistance to Emissions-Intensive Trade-Exposed Industries			-2.9	-3.1
Assistance to Strongly Affected Industries			-0.7	-0.7
Climate Change Action Fund		-0.3	-0.7	-0.7
Net Impact of Revenue and Assistance Measures		-0.3	0.8	-0.5
Resourcing of the CPRS Regulator	*	*	*	*

 
 Table E.3: Impact on fiscal balance of the Carbon Pollution Reduction Scheme and Related Measures

\* Final costs will be published in the 2009-10 Budget.

# Next steps

The White Paper is the foundation on which an ongoing response to climate change will continue to develop. Drafting for legislation to enact the Scheme is under way, and an exposure draft is expected to be released for public comment in late February 2009. Following public comment, the Government intends to introduce the relevant bills into the Australian Parliament in the winter session of 2009. Following successful passage of the legislation, it is expected that the Scheme will begin on 1 July 2010.

Design of the expanded national Renewable Energy Target is also well under way, and draft legislation is planned to be released for public comment in December 2008. Legislative and regulatory amendments to implement the design of the Renewable Energy Target are expected to be in place by mid- 2009, with the revised targets commencing from 2010.

Part of the Climate Change Action Fund will be rolled out before the Scheme commences to better assist Australia to prepare for the onset of a carbon price. Additional measures will also be developed to assist the land sectors contribute to reducing emissions until such time as they are covered by the Scheme and to transition into the Scheme at a later date.

There is no single solution to the global problem of climate change.

The costs of inaction on climate change are already beginning to be felt, and there is no case to delay any longer. Despite the economic challenges of today, the Australia Government will continue to take strong and decisive action on climate change because it is in Australia's economic interest.

# About this White Paper

This White Paper discusses major elements of the Government's strategy for combating climate change. It sets out the Government's policy in relation to:

- a medium-term target range for national emissions
- the design of the Carbon Pollution Reduction Scheme
- a range of complementary and supporting measures for households and industry.

The positions in this White Paper represent the culmination of a number of processes and intense national policy debate that have occurred over the course of several years. These processes, and stakeholder views, have informed the Government's policy positions.

In July 2008, the Government released a Green Paper on the design of the Carbon Pollution Reduction Scheme. Over 1000 submissions were received in response. More than 2400 people attended 18 public consultation sessions and workshops held in capital cities and regional areas. More than 260 companies attended technical workshops and meetings. Six industry and non-government roundtables were held with representatives from 45 organisations. The extent of the response to the Green Paper confirms the depth of the Australian public's concern about climate change.

Having taken this feedback into account, this White Paper variously confirms, elaborates on, and modifies the proposals contained in the Green Paper. The Green Paper itself took into account the work of the former Prime Ministerial Task Group on Emissions Trading, and the National Emissions Trading Taskforce; both of these processes were, in turn, assisted by the input of hundreds of stakeholders.

In September 2008, the Government received the Final Report of the Garnaut Climate Change Review. The Garnaut Review was commissioned in April 2007 by the eight state and territory governments and then Leader of the Opposition. The Australian Government joined the Review following the election in November 2007 of the current Government. This Review assessed the impacts of climate change on Australia and the effects of international action to combat climate change, and made a range of policy recommendations on medium term national emissions targets for Australia.

The Government has also released the results of the modelling undertaken by the Treasury, published in October 2008 as *Australia's Low Pollution Future: The Economics of Climate Change Mitigation*. This modelling exercise assessed the costs of achieving different national emissions cumulative targets.

The scope of the White Paper is broader than that of the Green Paper. While the Green Paper focussed on the design of the Scheme, the White Paper also outlines in more detail the science of global climate change and discusses Australia's role in a global solution, the selection of the national medium-term target and trajectory, and a range of complementary measures that will smooth the transition to a lower-carbon economy. It provides the Government's detailed policy positions on the Scheme, and outlines next steps in its development and implementation.

- ii R Garnaut, The Garnaut Climate Change Review: Final report, Chapter 12.
- iii R Garnaut, The Garnaut Climate Change Review: Final report, Chapter 11.
- iv Department of Climate Change, *Tracking to the Kyoto target: Australia's greenhouse emissions trends 1990 to 2008-2012 and 2020*, Commonwealth of Australia, 2008.

i Official Correspondence, 28 November 2008

# **SUMMARY OF POLICY DECISIONS**

# 1 The policy context

# Policy position 1.1

The Government accepts the key findings of the Garnaut Climate Change Review Final Report that:

- a fair and effective global agreement delivering deep cuts in emissions consistent with stabilising concentrations of greenhouse gases at around 450 parts per million or lower would be in Australia's interests
- achieving global commitment to emissions reductions of this order appears unlikely in the next commitment period
- the most prospective pathway to this goal is to embark on global action that reduces the risks of dangerous climate change and builds confidence that deep cuts in emissions are compatible with continuing economic growth and improved living standards.

# 4 National emissions trajectory and target

# Policy position 4.1

The Government accepts the key findings of the Garnaut Final Report that:

- a fair and effective global agreement delivering deep cuts in emissions consistent with stabilising concentrations of greenhouse gases at around 450 parts per million or lower would be in Australia's interests
- achieving global commitment to emissions reductions of this order appears unlikely in the next commitment period
- the most prospective pathway to this goal is to embark on global action that reduces the risks of dangerous climate change and builds confidence that deep cuts in emissions are compatible with continuing economic growth and improved living standards.

# **Policy position 4.2**

The target range for emissions reductions to be achieved by 2020 will be from 5 per cent to 15 per cent below 2000 levels.

The range represents:

- a minimum (unconditional) commitment to reduce emissions to 5 per cent below 2000 levels by 2020 (projected to be a 27 per cent reduction in per capita terms)
- a commitment to reduce emissions by up to 15 per cent below 2000 levels by 2020 (projected to be a 34 per cent reduction in per capita terms) in the context of global agreement under which all major economies commit to substantially restrain emissions and advanced economies take on reductions comparable to Australia.

The Government recognises that ambitious global action is in Australia's national interest.

In the event that a comprehensive global agreement were to emerge over time, involving emissions commitments by both developed and developing countries that are consistent with long-term stabilisation of atmospheric concentrations of greenhouse gases at 450 ppm CO<sub>2</sub>-e or lower, Australia is prepared to establish its post-2020 targets so as to ensure it plays its full role in achieving the agreed goal.

# **Policy position 4.3**

The national emissions trajectory will be an indicative trajectory.

The national emissions trajectory represents the national emissions reduction commitment over the period covered by the trajectory as a whole. It is not a projection of expected actual emissions for that period.

### **Policy position 4.4**

The first indicative national emissions trajectory covers the financial years 2010–11 to 2012-13 inclusive.

In 2010, the Government will announce a further two years of the trajectory (financial years 2013–14 and 2014–15).

Thereafter, the Government will announce a further year of the indicative trajectory before 1 July each year, so that the indicative trajectory for the current financial year and at least four future financial years is always known.

Should Australia enter an international agreement beyond the Kyoto commitment period, the Government may announce an indicative trajectory to the end of that period.

The indicative national emissions trajectory will not be included in legislation.

# **Policy position 4.5**

The first indicative national emissions trajectory will be:

- in 2010–11, 109 per cent of 2000 levels
- in 2011–12, 108 per cent of 2000 levels
- in 2012–13, 107 per cent of 2000 levels.

# 5 A framework for the Carbon Pollution Reduction Scheme

# **Policy position 5.1**

The objective of the Carbon Pollution Reduction Scheme is to meet Australia's emissions reduction targets in the most flexible and cost-effective way; to support an effective global response to climate change; and to provide for transitional assistance for the most affected households and firms.

# Policy position 5.2

Design options have been assessed against the following assessment criteria:

- environmental integrity
- economic efficiency
- minimisation of implementation risk
- policy flexibility
- promotion of international objectives
- implications for the competitiveness of traded and non-traded industries
- accountability and transparency
- fairness.

# 6 Coverage

#### **Policy position 6.1**

All greenhouse gases listed under the Kyoto Protocol—carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons—will be covered from Scheme commencement.

# **Policy position 6.2**

In general, direct Scheme obligations will apply to entities with a facility that has direct (scope 1) emissions of 25 000 tonnes of CO2-e a year or more.

The Government will review thresholds as part of its strategic reviews of the scheme.

#### **Policy position 6.3**

Emissions from stationary energy will be covered from Scheme commencement.

# **Policy position 6.4**

Transport emissions will be covered from Scheme commencement.

Scheme obligations will be applied to upstream suppliers of transport fuels.

# **Policy position 6.5**

Transitional assistance will be provided to help households and businesses to adjust to the impact of the Scheme.

#### **Policy position 6.6**

An administrative mechanism—the Obligation Transfer Number—will be established under the Scheme to enable Scheme obligations to be transferred with fuel supplies, from upstream fuel and synthetic greenhouse gas suppliers to downstream entities in some circumstances, and to enable upstream suppliers to net out fuels and gases supplied to downstream entities.

#### **Policy position 6.7**

Scheme obligations for emissions from the domestic combustion of petroleum products will apply to upstream suppliers of liquid fuels. Scheme obligations will be administered on the same basis as fuel tax arrangements.

Certain users and suppliers of petroleum products may use an OTN to purchase fuel and directly manage any associated permit liabilities.

#### **Policy position 6.8**

Scheme obligations for emissions from domestic combustion of LPG will apply to entities that first supply LPG for use in the domestic market.

Certain users and suppliers of LPG may use an OTN to purchase fuel and directly manage any associated permit liabilities. Note that LPG marketers will be required to use an OTN and that Scheme obligations will transfer, with LPG supplies, to these entities.

#### **Policy position 6.9**

Scheme obligations for emissions from domestic combustion of synthetic fuels for stationary energy will apply to manufacturers of synthetic fuels.

Scheme obligations for domestic combustion of synthetic fuels for transport will apply to upstream fuel suppliers and will be administered on the same basis as fuel tax arrangements.

Certain users and suppliers of synthetic fuels may use an OTN to purchase fuel and directly manage any associated permit liabilities.

#### **Policy position 6.10**

Scheme obligations for emissions from domestic combustion of products containing fossil fuels will be applied to entities with a facility that has direct (scope 1) emissions of 25 000 tonnes or more of  $CO_2$ -e a year or more from all sources.

#### Policy position 6.11

Scheme obligations for emissions from domestic combustion of natural gas and other gaseous fuels will apply to entities that first supply these gases for use in the domestic market.

Certain suppliers and users of natural gas may use an OTN when purchasing fuel and directly manage permit liabilities. Note that natural gas retailers will be required to use an OTN and that Scheme obligations will transfer, with natural gas supplies, to these entities.

### **Policy position 6.12**

The Government will apply Scheme obligations to entities that first supply coal and coal byproducts for use in the domestic market.

Certain suppliers and users of coal may use an OTN to purchase fuel and directly manage any associated permit liabilities.

#### **Policy position 6.13**

Carbon that is transferred to carbon capture and storage (CCS) facilities will not be counted towards the originating entity's gross emissions.

Scheme obligations for fugitive emissions from carbon capture, transport and storage activities will be imposed on the relevant CCS facility.

#### Policy position 6.14

Scheme obligations will not apply to emissions from combustion of biofuels and biomass for energy, including  $CO_2$ -e emissions from combustion of methane from waste landfill facilities; they will receive a 'zero rating'.

#### Policy position 6.15

Industrial process emissions will be covered from Scheme commencement.

Scheme obligations for industrial process emissions will apply to entities with a facility that has direct (scope 1) emissions of 25 000 tonnes CO<sub>2</sub>-e a year or more.

#### **Policy position 6.16**

Fugitive emissions will be covered from Scheme commencement.

Scheme obligations will apply to entities with a facility that has direct (scope 1) emissions of 25 000 tonnes of carbon dioxide equivalent a year or more.

#### **Policy position 6.17**

Emissions from landfill sites that closed prior to 30 June 2008 will not be covered.

Subject to participation thresholds, all other landfill facilities will be covered from Scheme commencement.

To ameliorate the impact of emissions from past waste streams (known as 'legacy' emissions), estimated emissions from waste deposited in the past will be excluded from the Scheme until 2018.

Methane that is captured will be allocated equally between legacy and new emissions.

Legacy emissions will be reported and counted towards participation thresholds.

# **Policy position 6.18**

In general, the Scheme will cover landfill facilities that emit 25 000 tonnes or more of carbon dioxide equivalent a year.

However, to avoid waste displacement from covered to uncovered sites, a lower participation threshold of 10 000 or more of carbon dioxide equivalent a year will apply to landfill facilities that are operating in proximity to another operating landfill facility (within a distance to be determined).

This participation threshold will return to 25 000 tonnes or more of carbon dioxide equivalent a year, 10 years after the site closes.

# **Policy position 6.19**

Emissions from waste water and waste incineration facilities will be covered from Scheme commencement.

Scheme obligations will apply to entities with a facility that has direct (Scope 1) emissions of 25 000 tonnes of  $CO_2$ -e a year or more.

#### **Policy position 6.20**

Synthetic greenhouse gas emissions would be covered from Scheme commencement.

Scheme obligations will be applied to entities that import or manufacture (there are currently none) 25 000 tonnes of  $CO_2$ -e a year or more.

Permits will be issued to entities that arrange for the destruction of used synthetic greenhouse gases in accordance with Scheme verification requirements.

# **Policy position 6.21**

The Government is disposed to include agriculture emissions in the Scheme by 2015.

Commencing in 2009, the Government will undertake a work program in consultation with the agriculture industry to enable a decision in 2013 on coverage of agriculture emissions in 2015.

### Policy position 6.22

All reforestation (as defined for the first commitment period of the Kyoto Protocol) will be included, on a voluntary basis, from Scheme commencement in 2010.

The Scheme will cover only domestic emissions sources and sinks that are counted in Australia's Kyoto Protocol national account.

The Government will in general provide five years notice of changes to accounting rules that would materially affect the supply and demand of Scheme permits.

#### **Policy position 6.23**

Landholders, certain lease holders and certain carbon property rights holders will be able to apply to become accredited forest entities under the Scheme.

#### Policy position 6.24

Emissions and removals will be estimated using a prescribed methodology such as the National Carbon Accounting Toolbox.

#### Policy position 6.25

An initial emissions estimation plan will be required.

Forest entities will be required to report at least once every five years, but will be able to report at shorter intervals of not less than 12 months.

Forest entities will be required to notify the regulator of any major changes to the emissions estimation plan as a result of changes to forest management or natural disturbances.

The regulator will publish information about all forest registrations.

#### **Policy position 6.26**

The regulator will issue permits up to a limit, incorporating a risk of reversal buffer.

The regulator will issue permits from Scheme commencement once carbon stocks are greater than in 2008.

The regulator will enforce Scheme liabilities for a defined period of time following the issue of the last permit for an individual forest stand.

Forest entities will not be required to surrender more permits than have been issued for an individual forest stand.

#### **Policy position 6.27**

The Government will not include deforestation in the Scheme.

# **Policy position 6.28**

The Government will consider the scope for domestic offsets in 2013.

The Scheme will not include domestic offsets from agriculture emissions in the period prior to coverage of these emissions.

The Government will facilitate the participation of Indigenous land managers in carbon markets and will further investigate the potential for offsets from reductions in emissions from savanna burning and will consult with Indigenous Australians on forestry opportunities under the Scheme.

# 7 Reporting and compliance

# **Policy position 7.1**

The National Greenhouse and Energy Reporting System will be the starting framework for monitoring, reporting and assurance under the Scheme. Specific elements of the National Greenhouse and Energy Reporting System will be strengthened to support the Scheme.

# Policy position 7.2

In general, an operational control test will be used to allocate emissions obligations arising from a covered facility.

#### **Policy position 7.3**

With the approval of the Scheme regulator, entities with financial control over a covered facility will have some flexibility to take on Scheme liabilities where specified criteria are met.

In cases where the Scheme regulator approves a transfer of liability to an entity with financial control over a covered facility, the entity taking on liabilities under the Scheme will also be required to take on reporting obligations for that facility under NGERS.

# **Policy position 7.4**

In general, Scheme obligations will fall on the controlling corporation of a corporate group where either the controlling corporation or a member of the controlling corporation's group has control over a covered facility.

Entities included in the controlling corporation's group will include the controlling corporation and its subsidiaries.

#### **Policy position 7.5**

With the approval of the Scheme regulator, controlling corporations will have some flexibility to shift Scheme obligations to another legal entity within their group where certain criteria are met, and with the caveat that Scheme obligations would revert back to the controlling corporation if the subsidiary fails to meet its obligations under the Scheme.

In cases where the Scheme regulator approves a transfer of liability for a covered facility to another entity within a controlling corporation's group, the entity taking on liabilities under the Scheme will also be required to take on reporting obligations for that facility under NGERS.

### **Policy position 7.6**

Liability will apply to Commonwealth, state and territory governments, statutory corporations and local councils where they have operational control over a covered facility.

#### **Policy position 7.7**

Where a covered facility is operated under an unincorporated joint venture agreement, the legal entity with operational control over the facility will be the liable entity under the Scheme.

The participants to unincorporated joint venture agreements will be free to break up the task and cost of purchasing compliance permits according to their specific agreements, with the entity with operational control being finally liable to surrender the correct number of compliance units for the covered facility.

If a single legal entity does not have operational control over a covered facility, a single legal entity will be required to be nominated by the participants to the joint venture to meet Scheme obligations.

#### **Policy position 7.8**

Where a single legal entity is identified as having operational control over a covered facility, that entity would be the liable entity under the Scheme.

If a single legal entity does not have operational control over a covered facility, a single legal entity (a trustee, partner or member of the management committee of an unincorporated association) will be required to be nominated to meet Scheme obligations.

#### **Policy position 7.9**

Where an entity has obligations under the Scheme in relation to a facility for a number of, but not all days in a financial year, that entity's obligations under the Scheme will be determined on a pro-rata basis.

In applying the pro-rata approach, the Scheme regulator will also have discretion to consider the actual pattern of annual emissions.

#### **Policy position 7.10**

Emissions estimation methodologies under the Scheme will be those set out under the National Greenhouse and Energy Reporting System.

The legislative package introducing the Scheme, including consequential amendments to the *National Greenhouse and Energy Reporting Act 2007*, will require that emissions data on all sources and sinks to be covered by the Scheme be reported to the Scheme regulator.

### Policy position 7.11

Electricity generators will be required to use National Greenhouse and Energy Reporting System Methods 2–4 for estimating and reporting carbon dioxide emissions that are covered under the Scheme (as required for the National Greenhouse and Energy Reporting System and the Generator Efficiency Standards program).

# Policy position 7.12

Liable entities reporting PFC emissions from aluminium smelting processes will be required to use National Greenhouse and Energy Reporting System Methods 2–4 for estimating these emissions under the Scheme.

#### **Policy position 7.13**

Entities reporting fugitive emissions from underground coal mines will be required to use National Greenhouse and Energy Reporting System Methods 2–4 for the estimation of emissions under the Scheme.

#### Policy position 7.14

Solid waste landfill sites will be required to use National Greenhouse and Energy Reporting System Methods 1–3 to estimate the proportion of legacy emissions arising from landfill sites.

#### **Policy position 7.15**

Staged increases in the accuracy of emissions estimates over time will be pursued by imposing increasing minimum methodologies for certain sources, where the benefits to the efficiency of the Scheme outweigh the compliance costs of implementing more accurate monitoring methods.

The responsible Minister will use existing powers under the *National Greenhouse and Energy Reporting Act 2007* to set minimum estimation methodologies. The Minister will consult with affected parties on the implementation costs and on the adequacy of notice before imposing new minimum standards for emissions estimation methodologies for a source or activity.

#### **Policy position 7.16**

Additional sources will be investigated for the possible imposition of minimum standards for emissions estimation methodologies soon after the Scheme begins, but not in the first two years of the Scheme. The Government will give priority to considering the following sectors for possible inclusion following the commencement of the Scheme:

- emissions from coal use (non-electricity, such as steel production)
- · emissions from solid waste deposited at landfills
- natural gas combustion emissions (non-electricity)
- fugitive emissions from open-cut coal mines.

# **Policy position 7.17**

The NGER legislation will be amended to implement reporting obligations and methodologies for upstream entities that will have obligations under the Scheme.

Legislation implementing the Scheme will amend the NGER legislation to best utilise:

- methodologies and guidance issued by the Australian Tax Office and the Australian Customs Service relating to the measurement of quantities of liquid fuels subject to excise and customs duty;
- section 46 of the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989* and regulation 900 of the Regulations dealing with quantities of synthetic greenhouse gases imported into, and manufactured in, Australia.

The NGER Measurement Determination will be amended to provide national average emission factors to be applied to measured quantities of fuels to be reported under the Scheme, to help determine the obligations of upstream liable entities.

# **Policy position 7.18**

Significant revisions to emissions estimation methodologies that affect the majority of stakeholders, such as amendments to global warming potentials of certain gases, or the inclusion of new gases, will be implemented after five years notice.

The Government is providing notice now that, if necessary, global warming potentials for gases covered under the Scheme will be revised at the beginning of the next commitment period (2013) to align with those agreed at the international level for the purposes of determining Australia's national emissions obligations.

# **Policy position 7.19**

Where an entity has elected to use Method 2 or above for a particular emission source, that methodology will be the minimum standard for that source, for that entity, for a period of four years.

# **Policy position 7.20**

Provisions relating to documentation and record keeping under the Scheme would be those set out under the NGER Act.

Entities with reporting obligations under the Scheme will be required to keep records for five years to substantiate emissions reports submitted to the Scheme regulator.

#### **Policy position 7.21**

A single emissions report will satisfy an entity's obligations under both the National Greenhouse and Energy Reporting System and the Carbon Pollution Reduction Scheme. Reports for each reporting period will be required to be submitted by 31 October following each financial year.

The Government will consider the need to require entities to report emissions more frequently than annually following initial experience with the Scheme.

# **Policy position 7.22**

The Scheme regulator will publish emissions obligations under the Scheme, the types of estimation methodologies used and any uncertainty estimates reported by liable entities on the internet as soon as is feasible after reports are submitted.

The Government will publish this information for liable entities, consistent with the level of disclosure set out under the NGER Act, rather than at the facility level.

The Government may review this level of publication based on the initial experience of the Scheme.

# **Policy position 7.23**

A common reporting timeline between financial and Scheme reporting will mean that most liable entities will be able to prepare financial and emissions reports at the same time with respect to the same periods, and for this information to be communicated to the market in a consolidated fashion.

In relation to disclosure, Australia's principles-based approach to non-financial reporting currently allows for the disclosure of information on emissions in directors' reports. Strategies to clarify and further emphasise non-financial disclosures are currently being considered by the Australian Government Treasury.

# **Policy position 7.24**

Large emitters (those with obligations under the Scheme for greenhouse gas emissions of 125,000 tonnes of carbon dioxide equivalent or more) will be required to have their annual emissions reports audited by an independent third party before submitting them to the Scheme regulator. The Government will consider the need to extend this requirement on the basis of initial experience, developments relating to international linking and the compliance burdens on small entities.

The Scheme regulator will conduct, or require the appointment of external auditors to conduct, external audits using either a risk management approach or on suspicion of non-compliance.

# **Policy position 7.25**

Audits under the Carbon Pollution Reduction Scheme will be carried out in accordance with guidelines made under the *National Greenhouse and Energy Reporting Act 2007*. The Government will finalise the standards (if any) to be referenced in these guidelines after considering submissions made in response to its public consultation paper, *National Greenhouse and Energy Reporting Act 2007 and Carbon Pollution Reduction Scheme—external audit consultation paper*.

# **Policy position 7.26**

All third-party emissions auditors will be registered to ensure the development of a pool of properly trained and qualified providers. The form and nature of registration (including whether it is conducted by the Government or a non-government body) will be finalised following the consideration of submissions in response to the public consultation paper

National Greenhouse and Energy Reporting Act 2007 and Carbon Pollution Reduction Scheme—external audit paper.

# **Policy position 7.27**

The Scheme will operate on an Australian financial-year basis, commencing on 1 July 2010.

# **Policy position 7.28**

The types of eligible compliance permits that will be accepted from the commencement of the Scheme are:

- carbon pollution permits
- certified emission reduction units (except temporary and long-term certified emission reduction units)
- emission reduction units
- removal units.

# **Policy position 7.29**

Liable entities will be required to report emissions to the Scheme regulator by 31 October each year following the reporting (financial) year.

The final date for the annual surrender of permits for an entity will be 15 December each year.

Liable entities will be permitted to surrender permits at any time before the annual surrender deadline to meet their end-of-year obligations.

If an entity surrenders more permits than required to meet its obligation in a compliance year, these permits will be carried over to help meet the entity's obligation in the next compliance year. Under all circumstances, permits, once surrendered, will not be able to be 'revived' from their surrendered status for the purpose of holding or transfer.

# Policy position 7.30

The Scheme regulator will have a range of compliance, investigative and enforcement powers and a range of mechanisms, including civil penalty and criminal provisions, to respond proportionately to non-compliance with the Scheme.

In addition to the administrative penalty, the obligation to surrender permits to meet any shortfall will continue under a 'make-good' requirement, with permits to be surrendered in the next compliance year.

# Policy position 7.31

Any entity or individual will be allowed to voluntarily surrender carbon pollution permits or eligible international units regardless of whether they have obligations under the Scheme.

Where an entity voluntarily surrenders an eligible international unit in the national registry, that permit will be cancelled and not used by the Australian Government to meet its international obligations under the Kyoto Protocol.

Where an entity voluntarily surrenders a carbon pollution permit, the Government will cancel an eligible international unit held by the Government by the end of the Kyoto true-up period.

No quantitative limit will be imposed on voluntary surrender at this time.

Permits other than carbon pollution permits and eligible international units will not be accepted for voluntary surrender.

### Policy position 7.32

To hold a carbon pollution permit or an eligible international unit, companies and individuals will need to open an account in the registry.

To open an account, companies and individuals will have to apply to the Government (providing relevant information to establish their identity) and pay any relevant fees.

# 8 Carbon markets

#### **Policy position 8.1**

Carbon pollution permits will be personal property.

Each permit can be surrendered to discharge Scheme obligations relating to the emission of one tonne of carbon dioxide equivalent of greenhouse gas.

Each permit will be surrendered under the Scheme only once.

There will be no power in the legislation to involuntarily extinguish or for a court to order the relinquishment of permits without compensation, except where the permits have been obtained through misrepresentation or fraud.

Permits, other than those issued under the price cap arrangements, will be transferable.

Permit holders will be entitled to surrender only permits that are entered on the national registry. Legal title will be transferred only by entry in the registry.

The creation of equitable interests in permits will be permitted, as will taking security over them.

Each permit will have a unique identification number and will be marked with the first year in which it can validly be surrendered (its 'vintage'). It will not have an expiry date.

The permit will be represented by an electronic entry in the registry, rather than by a paper certificate.

#### **Policy position 8.2**

Unlimited banking of permits will be allowed under the Scheme (except those accessed under the price cap arrangements).

#### **Policy position 8.3**

The Scheme will permit short-term borrowing.

#### **Policy position 8.4**

Borrowing will take the form of allowing liable entities to discharge up to a certain percentage of their obligations by surrendering carbon pollution permits dated from the following year.

#### **Policy position 8.5**

The Scheme will allow liable entities to discharge up to 5 per cent of their obligations by surrendering carbon pollution permits dated from the following year.

#### **Policy position 8.6**

The Scheme will have a compliance period of one financial year.

#### **Policy position 8.7**

The permit and eligible international units will be regulated as financial products for the purposes of the *Corporations Act 2001* and the *Australian Securities and Investments Commission Act 2001*, but with some adjustments to that regime to fit the characteristics of permits and to ensure no unnecessary compliance costs. The Government will consult further on those adjustments.

#### **Policy position 8.8**

Permits may be held and traded by any legal or natural person (subject to verification of identity and measures to prevent criminal activity).

There will be no restriction on foreign ownership of permits, apart from any that might apply under a law other than the Scheme legislation.

# **Policy position 8.9**

The Scheme will have a price cap for the period from 2010–11 to 2014–15.

#### Policy position 8.10

The Scheme will have a price cap in the form of access to an unlimited store of additional permits, issued by the Government at a fixed price. Liable entities will have the option of purchasing these permits from the time of the final reporting date for the Scheme up until the final surrender date for the Scheme to use for the purpose of meeting their obligations under the Scheme. These permits would not be able to be traded or banked for future use.

#### **Policy position 8.11**

The price cap will be set at \$40 and will commence in 2010–11.

#### **Policy position 8.12**

The level of the price cap will rise in real terms by 5 per cent per year.

# 9 Auctioning of Australian carbon pollution permits

# **Policy position 9.1**

Allocations will, over the longer term, progressively move towards 100 per cent auctioning as the Scheme matures, subject to the provision of transitional assistance for emissions-intensive trade-exposed industries and strongly affected industries.

# **Policy position 9.2**

- The responsible minister will be empowered to determine in a legislative instrument the auction policy and auction operation rules for calendar years 2010 and 2011.
- The regulator will be empowered to determine in a legislative instrument the auction policy and auction operation rules from 1 January 2012 onwards.
- The minister's determination will continue to have effect until it is replaced by an instrument made by the regulator.

# **Policy position 9.3**

Auctions will be held 12 times throughout the financial year.

#### **Policy position 9.4**

The Government will consult with industry on possible deferred payment arrangements for auctions of future vintage permits of a strictly limited and transitional nature. Options that involve the delivery of permits before final payment has been received, or that do not incorporate the payment of a deposit, will not be considered.

#### **Policy position 9.5**

At least one auction of the year's vintage will be held after the end of the financial year in the lead-up to the final surrender date. This will be within one month prior to the final surrender date.

#### **Policy position 9.6**

The first auction will take place as early as is feasible in 2010, before the start of the Scheme.

#### **Policy position 9.7**

The Government will advance auction future vintages.

#### **Policy position 9.8**

Four years of vintages will be advance auctioned (current vintage plus advance auctions of three future vintages).

### **Policy position 9.9**

Advance auctions for each future vintage will be held annually.

#### Policy position 9.10

Subject to the lodgement of any required deposit and having a registry account, universal participation will be permitted at auctions.

#### Policy position 9.11

Simultaneous ascending clock auction is the preferred auction type with bidders having the option to submit proxy bids in 'sealed bid format' for convenience.

#### Policy position 9.12

Simultaneous ascending clock auctions will be used for multiple vintage auctions.

#### **Policy position 9.13**

Entities receiving free permits will be able to sell these at auctions (double-sided auction design) occurring in calendar years 2010 and 2011.

# 10 Setting Scheme emissions caps

#### Policy position 10.1

The Government will provide Scheme caps to the end of five years and have the option to extend this certainty period to the end of any existing international commitment period, if longer.

#### **Policy position 10.2**

By using gateways, the Government will provide guidance on future Scheme caps beyond the period of fixed Scheme caps.

#### **Policy decision 10.3**

The Government intends to provide up to 10 years of gateways beyond the minimum five years of certain Scheme caps, taking into account progress in international negotiations.

#### Policy position 10.4

The Government will provide guidance on future Scheme caps beyond the initial certainty period through the use of a gateway in each of the following years, to the end of the gateway period.

### **Policy position 10.5**

Scheme caps will be extended by one year, each year, as required to maintain a minimum five-year certainty period.

#### Policy position 10.6

As part of a five-yearly strategic review, existing gateways will be extended by five years every fifth year from 2010–11.

#### Policy position 10.7

As part of a five-yearly strategic review, existing gateways will be narrowed every fifth year from 2010–11.

#### **Policy position 10.8**

Scheme caps will be set equal to the indicative national emissions trajectory in the relevant year, less the projected emissions from those sources not covered by the Scheme. Where this would lead to Scheme caps that lie outside the bounds of the relevant gateway, the Scheme cap will be set equal to the closest bound (upper or lower) of that gateway.

#### **Policy position 10.9**

The difference between the Scheme cap and the national emissions target will be explicitly and transparently reconciled through notional allocation (and retirement) of permits for sources of emissions not covered by the Scheme.

#### Policy position 10.10

In line with the methodology for setting Scheme caps generally, the approach for expanding caps to accommodate increases in Scheme coverage will be that the Scheme cap will be set equal to the indicative national emissions trajectory in the relevant year, less the projected emissions from remaining uncovered sources of emissions, taking into account any alternative mitigation measures applying to those uncovered emissions.

#### Policy position 10.11

The Scheme cap will not be adjusted in the event that it is not aligned with internationally negotiated national targets and, if necessary, the Government will make up any shortfall in internationally agreed targets by purchasing eligible international units.

#### Policy position 10.12

Scheme caps and gateways will be set in regulations, taking into account current and anticipated international obligations.

#### Policy position 10.13

If regulations for the Scheme cap are not in place at 1 July each year, a default Scheme cap equal to the previous year's Scheme cap multiplied by 0.99 will be added to the end of the set

Scheme cap period to maintain five years of Scheme caps at all times. This provision will be in the Scheme legislation.

### Policy position 10.14

In early 2010, before Scheme commencement and after the passage of legislation through parliament, the Government:

- will announce Scheme caps for the first five years, or, to the end of any new international commitment period if the Government elects to do so; and
- intends to announce up to 10 years of Scheme gateways beyond the minimum five years of Scheme caps.

# 11 Linking the Scheme to international markets

#### Policy position 11.1

The Scheme is designed so that it can link with international markets and schemes, with a preference for open trade within an effective global emissions constraint.

Australia's emissions reduction targets are based on net national emissions; that is, imported units will be counted as contributing to meeting the national target, and exported units will not be counted.

Any restrictions placed on linking will be to ensure:

- the stability and ongoing credibility of the Scheme
- the environmental integrity and effectiveness of the Scheme
- the Scheme's consistency with international objectives and obligations.

#### Policy position 11.2

The Scheme will create carbon pollution permits, which will be distinct from Australia's international (Kyoto Protocol) units.

#### Policy position 11.3

The use of eligible international units for compliance in the Scheme will not be subject to any quantitative limitations.

#### Policy position 11.4

The Scheme will link internationally via the Kyoto Protocol's flexibility mechanisms from its commencement.

Liable entities will be able to surrender eligible Kyoto units for compliance in the Scheme.

# **Policy position 11.5**

Certified emission reductions (CERs) generated under the Kyoto clean development mechanism will be accepted for compliance in the Scheme, with the exception of those that have associated contingent obligations and high administrative costs (currently, temporary CERs and long-term CERs).

In accordance with the rules set out in the Kyoto Protocol and any restrictions that apply to the use of international units in the Australian Scheme:

- CERs issued in the first commitment period of the Kyoto Protocol will be recognised for compliance in the Scheme in 2012–13 and in subsequent years
- CERs issued for abatement that occurs from 2013 onwards, by projects established in the first commitment period, will be recognised for compliance in the Scheme in 2012–13 and subsequent years.

# Policy position 11.6

Assigned amount units will not be accepted for compliance in the Scheme. This position will be reviewed for the post-2012–13 period in the light of developments in international negotiations.

# **Policy position 11.7**

Emission reduction units (ERUs) created under the Kyoto Protocol's joint implementation mechanism will be recognised for compliance purposes in the Scheme.

ERUs issued in the first commitment period of the Kyoto Protocol will be recognised for compliance in the Scheme in 2012–13 and in subsequent years, in accordance with the rules set out in the protocol and any restrictions that apply to the use of international units in the Australian Scheme.

ERUs converted from removal units in the first commitment period will not be recognised for compliance purposes in the Scheme from 2012–13.

#### **Policy position 11.8**

Removal units (RMUs) will be recognised for compliance purposes in the Scheme.

RMUs issued in the first commitment period will not be accepted for compliance in the Scheme beyond 2012–13.

# **Policy position 11.9**

International non-Kyoto units will not be accepted for compliance in the Scheme for the period from 2010–11 to 2012–13. This position will be reviewed for the post-2012–13 period in the light of future developments in international negotiations.

Australia will continue to support the development of robust, internationally accepted methodologies for assessing avoided emissions from deforestation and forest degradation in developing countries. Such methodologies are currently not recognised under the CDM.

# Policy position 11.10

The Government will retain the right to disallow the use of a given type of international unit for compliance in the Scheme at any time to ensure the environmental integrity of the Scheme and consistency with Australia's international objectives.

If a type of unit was accepted 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.

The Government may add to the types of international units that are recognised for compliance under the Scheme, where:

- the addition does not compromise the environmental integrity of the Scheme
- the addition is consistent with the objective of the Scheme, including Australia's international objectives
- there has been consultation with stakeholders, analysis of the expected impact on the permit price by an independent review, and notification to the market.

The Government's general approach will be to give five years notice of the acceptance of new types of units that are expected to have a significant impact on the permit price.

# Policy position 11.11

The sale and transfer of Australian permits to international markets will not be permitted in the initial years of the Scheme.

When allowed, exports of permits to international markets and other countries will be achieved either:

- by allowing permit holders to convert a carbon pollution permit into a Kyoto unit for subsequent sale and transfer to international markets; or
- by allowing the direct transfer of permits, where a bilateral link with another country's Scheme is established and there is an agreement that a shadow transfer of international units will occur at the government level.

# Policy position 11.12

The Government will give a minimum of five years' notice of a decision to allow the sale and transfer of Australian permits to international markets, except when establishing a bilateral link and:

- an independent review, including stakeholder consultation, finds that establishing the bilateral link will not have a significant impact on the permit price in the Scheme
- the responsible minister decides to waive or shorten the notice period.

# **Policy position 11.13**

Australia will not host JI projects in sectors that are covered by the Scheme.

Decisions on JI projects in uncovered activities will be aligned with decisions on domestic offsets.

The Scheme will not include JI projects from agricultural emissions during the period before a decision about coverage of that sector's emissions.

A decision on the scope for offsets and JI projects relating to sources of emissions that cannot be included in the Scheme will be made in 2013.

In 2013, the Government will consider the scope for offsets and JI projects in sectors that cannot be included in the Scheme.

# Policy position 11.14

Linking arrangements will be subject to review in the light of ongoing international negotiations and market development. The Government's policy intent is to relax restrictions on linking with credible schemes and mechanisms as the Australian Scheme matures.

Future international links will be considered only where they are consistent with the objective of the Scheme, which will include consistency with Australia's international objectives.

The effect of, and potential for, enhancing international linking will be covered by the Scheme's strategic reviews, which will be undertaken by the independent advisory committee. In addition, the Government may at any time establish an independent review to consider potential linking opportunities.

The Government will provide the maximum feasible level of certainty about future linking arrangements, consistent with retaining enough flexibility to respond to changing international arrangements.

Future linking arrangements will be determined and announced in conjunction with decisions on the national trajectory and Scheme caps.
#### **Policy position 11.15**

Direct bilateral linking opportunities, including mutual recognition of compliance units and harmonisation with the schemes of other countries and regions, will be considered on a case-by-case basis after the Scheme has been established.

Future bilateral links would only be consider with schemes that are of a suitable standard, based on a range of criteria including:

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

In deciding whether to link bilaterally, the Government will take into account existing indirect links.

A minimum of five years' notice will be given before a bilateral link with another country's Scheme is established, except where:

- an independent review, including stakeholder consultation, finds that establishing the link will not have a significant impact on the permit price in the Scheme
- the responsible minister decides to waive or shorten the notice period.

# 12 Assistance to emissions-intensive trade-exposed industries

#### Policy position 12.1

The key rationale for providing assistance which addresses some of the competitiveness impacts of the Scheme on emissions-intensive trade-exposed (EITE) industries is to:

- reduce the likelihood of carbon leakage in the period before broadly comparable carbon constraints are applying internationally
- provide transitional support to these industries.

The provision of assistance to EITE industries will support production and investment decisions that would be consistent with a global carbon constraint.

#### **Policy position 12.2**

The Government's support for EITE industries will be:

- targeted towards industries that produce traded goods and have the most significant exposure to a carbon price
- designed to maximise the incentives for EITE industries to adjust to a carbon-constrained future by:

- assessing eligibility and providing assistance on the same basis to all entities, new and existing, conducting a given activity
- providing assistance on the basis of historical information on the emissions from these activities
- directly linked to production and contingent on production continuing in Australia
- balanced against its objectives for non-assisted sectors and households
- consistent with Australia's international trade obligations.

## **Policy position 12.3**

EITE assistance will be provided to emissions-intensive trade-exposed industries in the form of an administrative allocation of carbon pollution permits at the beginning of each compliance period.

The regulator will publish details of permits that are allocated as EITE assistance in terms of:

- the recipients of EITE assistance, the numbers of permits allocated to each and the provision under which they were allocated
- the total permits allocated for the EITE assistance program
- the total for each activity within this program.

### **Policy position 12.4**

EITE assistance will be provided on an activity basis to ensure that assistance is well targeted and is equitably distributed within and across industries.

The following principles will be used to determine activities and the boundaries around each activity:

- an activity consists of the chemical or physical transformation of inputs to produce a given set of outputs
- activities should not be differentiated by the technology employed, the fuel used, the age of the plant or the quality and types of feedstock used
- boundaries around activities should be consistently and equitably applied across industries
- the approach to establishing boundaries around activities should have minimal impact on business investment, location and structure decisions
- in determining the boundaries around activities, consideration is given to the scope for intermediate inputs produced within the activity to be substituted for bought-in inputs
- there should be no overlap between different activity definitions to ensure that it would not be possible to receive assistance more than once for a given quantum of emissions.

# **Policy position 12.5**

Assistance will be provided to entities conducting EITE activities in relation to:

- the direct emissions associated with an activity for which a Scheme obligation will be incurred
- the emissions associated with the use of steam by an activity
- the cost increase associated with the use of electricity by an activity, which is assessed as resulting from the introduction of the Scheme
- the cost increase related to the upstream emissions from the extraction, processing and transportation of natural gas and its components, such as ethane and methane, used as feedstock by an activity.

Assistance will not be provided in relation to other indirect emissions (upstream or downstream) associated with an activity.

Assistance will be provided only in relation to emissions that are covered under the Scheme.

#### **Policy position 12.6**

The trade exposure of activities will be assessed on either:

- a trade share (defined as the ratio of the value of imports and exports to the value of domestic production) greater than 10 per cent in any one of the years 2004–05, 2005–06, 2006–07 or 2007–08; or
- a demonstrated lack of capacity to pass through costs due to the potential for international competition.

#### **Policy position 12.7**

The assessment of emissions intensity for the purposes of determining eligibility of an activity will be based on either:

- weighted average emissions per million dollars of revenue generated by entities conducting the activity; or
- entities may request to Government that the eligibility assessment for an activity is made on the basis of the weighted average emissions per million dollars of value added generated by entities conducting the activity, in which case, the entity and Government will need to agree on which input costs will be adjusted to calculate the proxy for value-added for the activity.

The estimates of the weighted average for each activity will be determined on the emissions per unit of production in 2006–07 and 2007–08 combined with estimates of revenue or value added per unit of production in 2004–05, 2005–06, 2006–07, 2007–08 and the first half of 2008–09, where the average is calculated as the weighted average of the lowest four estimates.

#### **Policy position 12.8**

The review of the EITE assistance program will determine whether activities that were initially ineligible for EITE assistance or were assessed as eligible at a 60 per cent assistance rate, should be reassessed either:

- in light of commodity price movements, where any such reassessment uses emissions data from 2006-07 and 2007-08 or best practice benchmarks to ensure incentives to reduce emissions are not muted. Assistance that would be provided to reassessed activities may be adjusted from initial levels to reflect an assessment of the EITE assistance program in achieving its objectives to date
- in light of extension to Scheme coverage to cover agricultural emissions, in which case the assessment of eligibility and determination of allocative baselines would be conducted in the process leading up to the 2013 decision on agriculture's inclusion. The Government's disposition is that decisions would be based on emissions from 2006-07 and 2007-08, as for all other potential EITE activities, or based on benchmarks that are unrelated to the behaviour of individual entities conducting the activity, to provide ongoing incentives for abatement activities.

#### **Policy position 12.9**

The eligibility of a completely new activity, that is an activity that is new to Australia after the commencement of the Scheme, will be considered by the Government with reference to international best-practice emissions-intensity benchmarks for producing the primary output of the activity.

#### Policy position 12.10

The EITE assistance program will:

- require all entities conducting activities to bear a proportion of the carbon cost they face
- provide assistance at two different rates, reflecting the need to provide relatively more assistance to relatively more emissions-intensive activities to reduce the likelihood of carbon leakage

Eligibility for EITE assistance will be based on the industry-wide weighted average emissions intensity of an activity being above a threshold of:

- 1000 tonnes of carbon dioxide equivalent (CO<sub>2</sub>-e) per million dollars of revenue; or
- 3000 tonnes of carbon dioxide equivalent (CO<sub>2</sub>-e) per million dollars of value added.

Initial assistance to eligible activities will be set at:

- 90 per cent of the allocative baseline for activities that have an emissions intensity above 2000 t CO<sub>2</sub>-e/\$million revenue or 6000 t CO<sub>2</sub>-e/\$million value added in the specified assessment period
- 60 per cent of the allocative baseline for activities that have an emissions intensity between 1000 t CO<sub>2</sub>-e/\$million revenue and 1999 t CO<sub>2</sub>-e/\$million revenue or between 3000 t CO<sub>2</sub>-e/\$million value added and 5999 t CO<sub>2</sub>-e/\$million value added in the specified assessment period.

The coal mining industry will not be eligible for EITE assistance at Scheme commencement since the majority of coal mines have an emissions intensity well below the eligibility threshold. A Coal Sector Adjustment package is included within the Climate Change Action Fund to assist the most emissions-intensive mines following the introduction of the Scheme.

#### Policy position 12.11

At the start of the Scheme it is estimated that EITE industries will be allocated around 25 per cent of total carbon pollution permits (equivalent to around 35 per cent if agricultural emissions were included in the Scheme).

The Government does not intend to readjust or recalibrate the eligibility thresholds or initial rates of assistance in light of any subsequent information about the quantum of assistance likely to be provided as EITE assistance.

#### Policy position 12.12

Over time, the Government will reduce the rates of assistance (90 or 60 per cent) accorded each EITE activity at a pre-announced rate, the carbon productivity contribution, of 1.3 per cent a year, to broadly ensure that EITE activities share in the national improvement in carbon productivity.

The same carbon productivity contribution will be applied to all EITE activities.

Between 2010 and 2020, the carbon productivity contribution will not be recalibrated for variations in the share of permits allocated to the EITE sector from expected levels except in the circumstance where assistance is withdrawn

#### Policy position 12.13

Allocations will be determined taking into account:

- the weighted average direct emissions (including steam) per unit of production across all entities conducting the specified activity in 2006–07 and 2007–08
- international evidence on the emissions per unit of production, particularly for activities in which there is only one entity conducting the activity in Australia
- the quantum and quality of information provided to Government in response to the release, in early 2009, of a guidance paper for the determination of assistance to emissions-intensive trade-exposed activities
- estimates of the average electricity use per unit of production across all entities conducting the specified activity in 2006–07 and 2007–08
- estimates of the average use of natural gas (and its components) as feedstock per unit of production across all entities conducting the specified activity in 2006–07 and 2007–08

The electricity allocation factor will be set at one permit per megawatt-hour, which is a generous estimate of the average likely national impact of the Scheme on electricity prices

The natural gas allocation factor will be set on a state-basis for the extraction, production and transportation of natural gas and its components and will be determined with reference to the

relevant emissions factors published in the National Greenhouse Accounts Factors (November 2008).

Baselines for allocations will not be updated over time for changes in the emissions intensity of entities conducting EITE activities in order to maximise abatement incentives, and will be used to determine allocations to new and existing entities conducting a given activity.

## Policy position 12.14

For large electricity users that consume more than 2000 gigawatt-hours a year at a single facility, contractual arrangements will be considered by the regulator to determine an entity-specific electricity allocation factor if those contracts were entered into before 3 June 2007 and remain in force on 1 January 2010.

No other contracts concerning electricity, steam and natural gas and its components used in feedstock will be considered in determining allocations of EITE assistance.

#### Policy position 12.15

Allocations of assistance to entities conduction EITE activities will be directly linked to the level of production of individual entities conducting an activity.

The previous year's production of the activity by the entity will be used to determine a given year's allocations, with the following exceptions:

- in the first year of the Scheme, the average production of the highest two of the last three years will be used
- with regard to new entrants and significant expansions, the Scheme regulator will be afforded the discretion to determine the first few years' allocations, to allow for a 'ramp up' period before capacity production levels are achieved.

If an entity ceases operating an EITE activity, it will be required to relinquish permits that had been allocated to it for production that did not occur.

Where an EITE activity is carried out at a single facility, the entity which has, or would have, liability under the Scheme for direct emissions from the facility may apply for assistance.

Where more than one entity has liability or potential liability under the Scheme (such as where more than one facility is involved), there must be a joint application from those entities, and that joint application must specify how they want the assistance allocated.

#### **Policy position 12.16**

The EITE industry assistance program will be reviewed by an Independent Expert Advisory Committee at each five-year review point, or at another date at the request of the Minister for Climate Change and Water.

The review of the EITE assistance program will be in regard to:

• the review of eligibility assessment for activities (see policy position 12.8)

- whether modifications should be made to the EITE assistance program on the basis of whether it continues to be consistent with the rationale for assistance, is conferring windfall gains on entities conducting activities and is appropriately balancing the competing policy objectives
- whether broadly comparable carbon constraints are applying internationally, at either an industry or economy-wide level, or an international agreement involving Australia and all major emitting economies is concluded, in which case the Committee would make recommendations to Government with regard to the withdrawal of EITE assistance.

Five years' notice will be provided of any modifications to the EITE assistance program, unless the modifications were required for compliance with Australia's international trade obligations.

Once the Scheme has commenced, firms may request that the Government commission the Productivity Commission to undertake an assessment of the Scheme impact on their industry.

If the Government refers a request to the Commission, it will make an assessment of the impact of the introduction of the Scheme on the industry, taking into account the industry's circumstances, including the range of factors unrelated to the Scheme that will affect the profitability of the industry, and the assistance provided under the EITE and CCAF assistance programs.

The Commission will make recommendations to the Government about whether it should provide additional support to the industry from the CCAF, and the appropriate mechanism for that support.

#### Policy position 12.17

The establishing Act will set out the legal framework for the EITE assistance program.

The details of the EITE assistance program including the list of EITE activities that would be eligible for assistance, the definitions of these activities, the rates of assistance applying to these activities and the baselines for allocations will be set out in the Scheme regulations with allocation decisions being made by the regulator consistent with the requirements of those regulations.

# 13 Assistance to strongly affected industries

#### **Policy position 13.1**

Strongly affected industry assistance is not an appropriate measure to address the effect of contractual impediments to carbon cost pass-through.

#### **Policy position 13.2**

The characteristics of strongly affected industries are that they must:

- be non-trade-exposed, as entities in trade-exposed industries may be eligible for assistance as emissions-intensive trade-exposed (EITE) industries
- be emissions-intensive (exceeding the threshold for eligibility proposed for EITE industries)

- include some entities that are emissions-intensive compared to their competitors, such that they cannot pass on carbon costs, and so could experience significant losses in asset value
- have significant sunk capital costs
- not have significant economically viable abatement opportunities available to them.

### **Policy position 13.3**

Coal-fired electricity generation has the characteristics of a strongly affected industry, and the Government will consider appropriate assistance measures for that industry.

#### **Policy position 13.4**

Industries other than coal-fired electricity generation do not have the characteristics of strongly affected industries.

## **Policy position 13.5**

Australian Government assistance for carbon capture and storage technologies will be delivered through existing programs, such as the National Low Emissions Coal Initiative and the Global Carbon Capture and Storage Initiative.

#### Policy position 13.6

Structural adjustment assistance for regions dependent on the coal-fired electricity generation sector will be provided, if required, through the structural adjustment provision of the Climate Change Action Fund, and so will be consistent with other structural adjustment assistance measures for workers, communities and regions.

#### **Policy position 13.7**

The Government will provide limited direct assistance to coal-fired electricity generators through the Electricity Sector Adjustment Scheme (ESAS) to ameliorate the risk of adversely affecting the investment environment in the Australian electricity generation sector.

#### **Policy position 13.8**

The Government will deliver limited direct assistance through the administrative allocation of a fixed quantity of permits valued at around \$3.9 billion in nominal terms, or \$3.5 billion in 2008–09 dollars.

#### **Policy position 13.9**

The Government will allocate assistance through ESAS to coal-fired electricity generators according to a methodology that weights assistance by:

- the historical energy output of the generator, measured as the electricity generated by the asset between 1 July 2004 and 30 June 2007
- the extent by which the Scheme regulator's estimate of the emissions intensity of the generator (over the period 1 July 2004 to 30 June 2007) exceeds the Government's

threshold level of emissions intensity (0.86 tonnes of CO<sub>2</sub>-e per megawatt-hour of electricity generated).

The Scheme regulator's estimate of emissions intensity will be on an 'electricity generated' basis, and will consider emissions only from the combustion of fuel that are directly attributable to the generation of electricity.

The Government will clarify how this methodology will apply to assets that did not enter service until after 1 July 2004.

#### Policy position 13.10

The Government will provide assistance through ESAS in the form of administratively allocated permits.

#### Policy position 13.11

Potential recipients of assistance under ESAS will:

- be required to apply to the Scheme regulator within 90 days of the commencement of Scheme legislation to prove their eligibility and provide other information relevant to determining the amount of assistance they should receive
- have these applications assessed by the Scheme regulator to determine eligibility and the quantity of permits that may be provided to each eligible generator.

#### Policy position 13.12

The Government will issue up to 130.7 million permits over the first five years of the Scheme through ESAS which delivers assistance of around \$3.9 billion in nominal terms based on carbon prices estimated under the CPRS -5 scenario. The permits will be distributed in equal amounts in each of the five years, subject to eligible entities satisfying the conditions for assistance, and subject to the outcome of the windfall gains review.

#### **Policy position 13.13**

The Government will limit eligibility for assistance under ESAS to electricity generators that:

- generated electricity in June 2007, or were planned to return to service before the end of 2007 (or following the end of restrictions on their access to cooling water), or are considered to have been 'committed' projects at 3 June 2007 when assessed against the relevant National Electricity Rules criteria
- were, or were planned to be, connected to a major electricity grid
- used coal for over 95 per cent of their energy supply in the period from 1 July 2004 to 30 June 2007, or, if the generator was not in operation before 1 July 2007, intended to use coal for over 95 per cent of their energy supply.

#### Policy position 13.14

The Government will provide assistance that is available through ESAS in respect of a given asset in any given year to:

- the entity that was the liable entity for an eligible asset's emissions at the end of the preceding financial year, or
- if no liability is incurred in relation to an eligible asset, the entity that would have been liable for that asset's emissions at the end of the preceeding financial year had a liability been incurred.

## Policy position 13.15

The Government will require each recipient of assistance through ESAS to submit to a windfall gains review, which will involve the following:

- The Scheme regulator will assess whether the delivery of assistance to an individual generator would be likely to deliver that generator a windfall gain.
- The likelihood of windfall gains will be assessed by comparing the generator's actual and predicted revenues under the Scheme with those predicted to have occurred in the absence of the Scheme and the expanded national Renewable Energy Target over a 15-year period.
- The Scheme regulator's assessment of the likelihood of a windfall gain will not take into account actual or predicted upgrades to generation plant.
- If the Scheme regulator finds that a windfall gain is likely, the responsible minister will have discretion to withhold the last two years of assistance from that asset.
- A regulator finding that windfall gains are likely may be challenged by the generator in the Administrative Appeals Tribunal.

#### **Policy position 13.16**

The Government will not adjust the assistance allocation methodology in the light of the contractual positions of individual generators. However, the Scheme regulator will be required to take into account the effect of contracts entered into before 3 June 2007 (for the period that they are not subject to revision or renegotiation) as part of the windfall gains review.

#### Policy position 13.17

Energy security can be maintained through the setting of a target range for emissions cuts that allows for a smooth transition to lower-emissions technology. Any minor amendments that are required to the energy market frameworks can be accommodated within the current rules amendment processes.

#### Policy position 13.18

The provision of limited direct assistance will be conditional on the recipient remaining registered with the relevant market operator, with the same actual or planned capacity as at 3 June 2007, unless the relevant the market operator assesses that there are likely to be adequate

energy reserves in the system to allow the reduction in capacity without breaching the power system reliability standards.

# 14 Tax and accounting issues

#### Policy position 14.1

Discrete legislative provisions will be developed for the tax treatment of permits.

#### **Policy position 14.2**

The rolling balance method will be used to bring permits to account for income tax purposes, as it provides an effective mechanism for achieving the goals of the Scheme and upholds the principles of simplicity, tax neutrality and cost-effectiveness.

#### Policy position 14.3

Taxpayers will make an election to use either historical cost or market value to value all permits held at the end of an income year.

Taxpayers will be able to change valuation methods once during a transitional period of five years from the Scheme's commencement, after which no change will be allowed.

#### Policy position 14.4

The cost of acquiring a permit will be deductible when the taxpayer starts to hold the permit.

If the permit is banked, the effect of the deduction will be deferred until the time the permit is surrendered or sold.

Any proceeds received on the sale of a permit will be treated as assessable income.

#### **Policy position 14.5**

The value of administratively allocated permits issued to coal-fired electricity generators that are on hand at the end of the income year they are received will be included in the taxpayer's assessable income through the rolling balance mechanism in that year.

The value of administratively allocated permits issued to emissions-intensive trade-exposed entities will be valued at zero at the end of an income year ending before the last surrender date for the emissions year for which they were issued. If administratively allocated permits are held at the end of a later income year, the permit will be valued according to the election the taxpayer makes between historical cost and market value. The historical cost value will be the market value at the issue date.

#### **Policy position 14.6**

If a permit is surrendered for a non-commercial purpose an amount equal to the original deduction will be included in assessable income.

### **Policy position 14.7**

The tax law already recognises expenses incurred in relation to establishing and maintaining a Kyoto-compliant forest or synthetic greenhouse gases.

The value of created carbon pollution permits will be included in the rolling balance and included in the entity's taxable income for that year, with a corresponding reduction in taxable income in the year the permits are used (sold or surrendered). Proceeds of selling the permit are assessable income.

If created permits are on hand at the end of the income year they are issued, they will be included in the rolling balance at the following value:

- if historical cost is the valuation method, the market value at the date of issue
- if market value is the valuation method, the market value at the end of the year.

#### **Policy position 14.8**

A penalty imposed under the Scheme, including one imposed on a liable party for failing to surrender sufficient eligible compliance permits, will not be deductible.

For the first five years of the Scheme fixed price permits issued under the price cap arrangements will be available for purchase between the final reporting date and the final surrender date for each emissions year. The cost of these permits will be deductible but they cannot be banked or traded, they can only be surrendered.

#### **Policy position 14.9**

The Government will amend the GST law to characterise carbon pollution permits and eligible Kyoto units for GST purposes as personal property rights (and not rights within the meaning of real property in the *A New Tax System* (*Goods and Services Tax*) *Act 1999*) to promote certainty.

The normal GST rules will apply to Scheme transactions, including the input taxed treatment of supplies of financial derivatives of permits.

#### Policy position 14.10

The International Accounting Standards Board will determine accounting requirements for emissions-related assets and liabilities in Australia.

The International Accounting Standards Board will issue an exposure draft of the proposed accounting requirements in 2009, and the Australian Accounting Standards Board will reissue the draft for comment in Australia.

# 15 Transitional issues

#### Policy position 15.1

The Australian Government will continue to work with the Queensland Government to encourage the development of appropriate termination arrangements for the Queensland Gas Scheme.

#### Policy position 15.2

The Australian Government will continue to seek an agreement with the NSW and ACT governments on GGAS termination. However, should agreement not be reached on this approach, the Government will consider providing some limited assistance for the benefit of GGAS participants, with priority given to adversely affected cogeneration (being rewarded for avoided methane creation), landfill gas and waste coal mine methane generators directly, and, as a lesser priority, to holders of unused NGACs.

The Australian Government will also allow GGAS forestry projects to opt into the Scheme, provided they meet the Scheme eligibility requirements.

#### **Policy position 15.3**

A program for allocating early action credits will not be established as companies that have taken action ahead of the introduction of the Scheme may already be benefiting from lower input costs and will continue to benefit under the Scheme through avoidance of higher energy costs or Scheme liabilities.

#### **Policy position 15.4**

The Australian Government supports the work of the MCE and the review currently being conducted by the AEMC and places a high priority on removing unnecessary, inefficient and distortional regulatory barriers to carbon cost pass-through.

#### Policy position 15.5

Based on current information, the Government will take no action with respect to contractual impediments other than as discussed in Chapter 7 in relation to the ability of firms to transfer obligations under certain circumstances. In 2009 the Government will continue to monitor the nature of contractual issues, including the scope for, and progress of, commercial negotiations, once stakeholders have had an opportunity to assess the exposure draft of the legislation.

The legislation will not contain any provisions designed to override contracts to allow for pass-through of carbon costs.

#### **Policy position 15.6**

The Scheme will not have a fixed-price transition period.

# **16** Governance arrangements and implementation

### **Policy position 16.1**

Elected representatives (the parliament and the Government, acting through the responsible minister) will be given responsibility for policy decisions with significant and far-reaching implications, and an independent regulator will be responsible for decisions that are essentially administrative or that involve individual cases.

The guiding approach to governance arrangements is to provide as much certainty and predictability for regulated entities and the market as is practicable, while retaining an appropriate degree of flexibility for the Government to adjust the Scheme in response to changed circumstances.

#### **Policy position 16.2**

A reference to the 2020 national target range and long-term national target will be included in the objects clause of the Act establishing the Scheme.

The factors that the Government may consider when making decisions about the national targets over time will be set out in the explanatory memorandum.

#### **Policy position 16.3**

The Scheme regulator will be given a high level of operational independence to implement the emissions trading legislation 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. However, the minister will be able to direct the regulator to make transactions involving the emissions units belonging to the Commonwealth, through the Commonwealth's account in the national registry.

#### **Policy position 16.4**

The Scheme caps and gateways will be set out in regulations. The first regulations relating to Scheme caps will contain the caps for years 1–5. Scheme caps will always be specified for at least five years in advance. Subsequent regulations will extend Scheme caps by increments of one or more years at a time. These will be set in the light of Australia's obligations under international agreements, consistent with Chapter 10.

#### **Policy position 16.5**

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.

#### **Policy position 16.6**

The regulator will be established as an incorporated body subject to the *Financial Management and Accountability Act 1997*. The regulator will have a commission structure

with a minimum of three and a maximum of five statutory office-holders appointed by the responsible minister.

The legislation will also provide that the Minister, regulator and members of the regulator are not liable to an action or proceedings for damages in relation to an act done or omitted in good faith in the exercise of their functions under the Scheme.

#### Policy position 16.7

The functions of the Greenhouse and Energy Data Officer, the Renewable Energy Regulator and the Carbon Pollution Reduction Scheme regulator will be combined into one agency. The Government will put in place measures to ensure that all these functions are given adequate attention. The Scheme legislation will require the regulator to include details of all its functions in a three-yearly corporate plan and in the regulator's annual report.

#### **Policy position 16.8**

An independent expert advisory committee will be constituted periodically to conduct public strategic reviews of the Scheme.

The first review will be completed by 30 June 2014, and the independent expert advisory committee will be constituted with sufficient time before then for preparatory work. Adequate secretariat support will be provided to enable the committee to perform its functions effectively. Reviews will involve public consultation, and the advisory committee will be required to prepare a report of the review and give it to the minister. The minister will be required to table the report in parliament within 15 sitting days of receipt. If the report includes recommendations, the minister will be required to prepare a statement of the Government's response and table it within six months of receiving the report.

The establishing Act will provide that each subsequent review will be completed within five years after the last day on which the Government's response to the previous review was tabled in parliament, or earlier if the responsible minister makes a written determination specifying an earlier date.

More frequent 'care and maintenance' reviews may be necessary in the early years of the Scheme to assess the operation of administrative arrangements. Legislative provisions will not be required for such reviews. However, to improve market certainty, the scope of those early reviews will be tightly defined.

#### **Policy position 16.9**

The Act establishing the Scheme will set out a broad framework for monitoring and facilitating compliance.

#### Policy position 16.10

The Scheme 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.

# 17 Household assistance measures

## Policy position 17.1

The Government will provide direct cash assistance to households upfront to coincide with any increase in the cost of living flowing from the Scheme. This will help low- and middle - income households maintain their standard of living and take advantage of mitigation opportunities.

Low- and middle-income households will receive assistance from 1 July 2010 to meet the higher cost of living resulting from the Scheme's introduction.

#### Policy position 17.2

The Government will initially reduce excise and excise-equivalent customs duty (fuel tax) on 1 July 2010 for all fuels currently subject to the general rate of 38.143 cents per litre. The tax cut will be based on the effect of pricing diesel emissions.

#### **Policy position 17.3**

The Government will legislate to automatically reduce fuel tax on a six-monthly basis if the average carbon pollution permit price in the six-month period exceeds the previous reduction, including the initial one, in the period to 30 June 2013.

#### Policy position 17.4

The Government will introduce legislation to implement a new CPRS fuel credit scheme for three years for businesses in the agriculture and fishing industries.

#### Policy position 17.5

The Government will introduce legislation to implement a new CPRS fuel credit scheme for one year for businesses in heavy on-road transport.

#### **Policy position 17.6**

The Government will introduce legislation to implement a new CPRS fuel credit scheme for LPG, CNG and LNG users that reflects the lower emissions of those fuels.

The CPRS fuel credit scheme for LPG will be in place for three years.

The CPRS fuel credit scheme for CNG and LNG will be in place for one year.

# 18 Climate Change Action Fund

#### Policy position 18.1

The objective of the Climate Change Action Fund will be to assist in smoothing the transition for businesses, community sector organisations, workers, regions and communities to an operating environment that includes a price on carbon.

## **Policy position 18.2**

The CCAF will be structured in four streams:

- Addressing information gaps for business and community organisations about the operation of the Scheme and how these entities can minimise the expected financial impacts.
- Grants and incentives to support investment in energy efficiency and low emissions technologies, processes and products.
- Structural adjustment assistance for workers and communities significantly impacted by the introduction of the Scheme. The Government will monitor the impact of the Scheme on workers, communities and regions following the commencement of the Scheme and stand ready to provide assistance where a clear, identifiable and significant impact arises, or is highly likely to arise, as a direct result of the Scheme.
- Adjustment assistance for the coal sector to address impacts on coal mines with high fugitive emissions.

#### **Policy position 18.3**

A Stakeholder Consultative Committee, comprising business, environmental and community stakeholders, will be established to provide advice on detailed design and implementation of activities under the CCAF and on the operational aspects of the regulation of the Scheme.

#### **Policy position 18.4**

Detailed program guidelines and the eligibility criteria for assistance under each stream of the CCAF will be determined by the Government in the first half of 2009, following consultation with key stakeholders.

# **19 Complementary measures**

#### **Policy position 19.1**

The Government will use the following principles to guide assessment of emission reduction measures:

- 1. The measures are targeted at a market failure that is not expected to be adequately addressed by the Scheme or that impinges on its effectiveness in driving emissions reductions. For example, research and development failures, common use infrastructure issues, information failures and excess market power.
- 2. Complementary measures should adhere to the principles of efficiency, effectiveness, equity and administrative simplicity and be kept under review. They may include:
  - a) measures targeted at a market failure in a sector that is not covered by the Scheme
  - b) measures for where the price signals provided by the Scheme are insufficient to overcome other market failures that prevent the take-up of otherwise cost-effective abatement measures

- c) measures targeted at sectors of the economy where price signals may not be as significant a driver of decision making (e.g. land use and planning)
- d) Some measures in (a) or (b) may only need to be transitional depending on expected changes in coverage or movements in the carbon price.
- 3. Complementary measures should be tightly targeted to the market failures identified in the above criteria that are amenable to government intervention. Where the measures are regulatory they should meet best practice regulatory principles, including that the benefits of any government intervention should outweigh the costs.
- 4. Complementary measures may also be targeted to manage the impacts of the Scheme on particular sectors of the economy (for example to address equity or regional development concerns). Where this is the case, in line with regulatory best practice, the non-abatement objective should be clearly identified and it should be established that the measure is the best method of attaining the objective.
- 5. Where measures meet the above criteria, they should generally be implemented by the level of government that is best able to deliver the measure. In determining this, consideration should be given to which level of government has responsibility, as defined by the Constitution or convention/ practice; the regulatory and compliance costs that will be imposed on the community; and how the delivery of the measure is best coordinated or managed across jurisdictions.

# **Appendix C: Implementing the Kyoto Protocol**

# **Policy position C.1**

To effect Australia's obligations associated with its assigned amount under the Kyoto Protocol, the scheme regulator will be required to perform the following functions, as instructed by the responsible minister:

- issue Australia's AAUs into the national registry (note that the Government will issue AAUs before the scheme regulator is in place)
- make appropriate additions to, and subtractions from, Australia's assigned amount at the end of the true-up period
- retire Kyoto units valid for the relevant commitment period
- transfer Kyoto units into a cancellation account in the national registry, should Australia's emissions exceed its final assigned amount, as indicated by the Kyoto Protocol's compliance procedure.

The Government, through the responsible minister, will be responsible for:

- managing Australia's emissions and assigned amount on an ongoing basis
- ensuring that sufficient Kyoto units will be available to meet Australia's Kyoto Protocol commitments

• managing the Government's national registry accounts.

### **Policy position C.2**

The scheme regulator will be required to perform the following functions, as instructed by the responsible minister:

- · issue removal units into Australia's national registry
- suspend issuance if a question of implementation is identified under the Kyoto Protocol
- cancel Kyoto units equivalent to Australia's net emissions from relevant land use, land-use change and forestry activities.

#### **Policy position C.3**

In accordance with the Kyoto Protocol, the scheme regulator will maintain a list of entities authorised by Australia to participate in international emissions trading, and will make that list available through the national registry. The regulator will also transfer and acquire Kyoto units on behalf of the Government, as instructed by the responsible minister.

#### **Policy position C.4**

The Department of Climate Change will be appointed in 2009 as Australia's Designated National Authority for the purposes of approving participation by legal entities in CDM projects.

#### **Policy position C.5**

The Department of Climate Change will be appointed in 2009 as Australia's Designated Focal Point for the purposes of approving participation by legal entities in JI projects in other Annex I countries.

#### **Policy position C.6**

All transfers of Kyoto units out of Australia's national registry will be subject to the commitment period reserve imposed by the Kyoto Protocol.

The Government may make regulations prescribing procedures and measures for managing the commitment period reserve.

The Government will specify how the commitment period reserve will be managed if and when the scheme allows for the transfer of AAUs to other countries by private entities.

#### **Policy position C.7**

The carry over restrictions applying to Kyoto units held in Australia's national registry will be managed by establishing a rule so that each holder of CERs and ERUs (including the Government itself) will be allowed to carry over a proportion of their units so that, in aggregate, no more than the allowable volume of CERs and ERUs is carried over. For example, if the total number of CERs in the registry at the time of carry over is twice the allowable amount, each holder will be able to carry over half its CERs.

In accordance with the Kyoto Protocol, carry over will not be permitted of RMUs, ERUs converted from RMUs, tCERs or ICERs. AAUs may be carried over without restriction.

To help the market better manage the risk associated with the carry over restrictions, the scheme regulator will regularly report the number of CERs and ERUs held in Australia's national registry.

# **Policy position C.8**

The national registry will conform to the technical standards and rules made pursuant to the Kyoto Protocol.

Despite the qualitative restrictions placed on the use of Kyoto units for compliance under the scheme, all Kyoto units will be allowed to be held in Australia's national registry. However, the Government retains the right to exclude any type of Kyoto unit from being transferred into and held in the registry. Any such exclusion will not apply to units that are already held in the registry.

The scheme regulator will be required to cancel tCERs or ICERs which require replacement (for any reason) if the entity holding those units does not comply with the replacement obligations within 20 days of notification by the international transaction log. Expired temporary CERs or long-term CERs held in an entity's holding account will immediately be transferred by the regulator to a cancellation account.

Where an entity voluntarily surrenders a Kyoto unit, that unit will be cancelled and not used by the Government to meet its Kyoto Protocol emission reduction target.

# 1 The policy context

Dealing with the climate change challenge is critical to Australia's economic security and future prosperity. The scale of the challenge should not be underestimated. The Government is moving steadily to implement its comprehensive framework for tackling climate change in Australia. The framework is built on three pillars: reducing Australia's greenhouse gas emissions; adapting to climate change that we cannot avoid; and helping to shape a global solution.

Climate change is the greatest social, economic and environmental challenge of our time. Scientific evidence confirms that human activities, such as burning fossil fuels (coal, oil and natural gas), agriculture and land clearing, have increased the concentration of greenhouse gases in the atmosphere. As a consequence, the earth's average temperature is rising and weather patterns are changing. This is affecting rainfall patterns, water availability, sea levels, storm activity, droughts and bushfire frequency, putting at risk Australian coastal communities, health outcomes, agriculture, tourism, heritage and biodiversity for current and future generations.<sup>1</sup>

The climate is already changing, with more frequent and severe droughts, rising sea levels and more extreme weather events. Eleven of the past 12 years rank among the 12 warmest years since records began<sup>2</sup>, and Australia has experienced warmer than average mean annual temperatures for 16 of the past 18 years.<sup>3</sup> The latest report from the Intergovernmental Panel on Climate Change (IPCC), the 2007 Fourth Assessment Report, concludes that Australia has significant vulnerability to the changes in temperature and rainfall projected over the coming decades.<sup>4</sup>

The Garnaut Climate Change Review Final Report paints a bleak picture of Australia at the end of this century should greenhouse gas emissions continue unchecked. There would be major declines in agricultural production across much of the country, leading to a growing reliance on food imports. The Great Barrier Reef and other reef systems, such as Ningaloo, would be effectively destroyed, with serious ramifications for tourism industries and biodiversity. Coastal infrastructure would be at risk of damage from storm surges and flooding. Key Australian export markets would have significantly lower economic activity, feeding back into lower prices for Australian exports and poorer terms of trade.

The Garnaut Final Report suggests that emissions are tracking at the upper bounds of the scenarios modelled by the IPCC in the Fourth Assessment Report. New data and scientific understanding, unavailable for the Fourth Assessment Report, suggest that the rate and magnitude of climate change over the next century may be at the high end of the range estimated by the IPCC. Trends in global mean temperature and sea-level rise are also at the upper end of the range of projections.<sup>5</sup> There is increasing concern about the stability of the Greenland and west Antarctic ice sheets, with major implications for sea-level rise.<sup>6</sup>

A response to the threat of climate change is imperative.

This chapter lays out the architecture of the Government's climate change response—a framework that will create new opportunities for Australia.

- Section 1.1 discusses the costs of action and inaction in responding to climate change.
- Section 1.2 explains the Government's policy framework and how the policies detailed in this White Paper fit within it.
- Section 1.3 outlines the structure of the White Paper.

# 1.1 The costs of inaction on climate change

The IPCC's Fourth Assessment Report suggests that, in a 'business as usual' world where world-wide economic growth continues, based on fossil fuels, the best estimate of temperature rise by the end of the century would be 4 degrees Celsius.<sup>7</sup> The report says that climate change caused by this temperature rise is very likely to have widespread and severe consequences, including significant species extinctions around the globe, real threats to food production, and severe health impacts, with dramatic increases in morbidity and mortality from heatwaves, floods and droughts.<sup>8</sup>

The environmental impacts of climate change have flow-on effects for other aspects of human society, such as the economy, security and human health. As the Stern Report stated:

The evidence shows that ignoring climate change will eventually damage economic growth. Our actions over the coming few decades could create risks of major disruption to economic and social activity, later in this century and in the next, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century. And it will be difficult or impossible to reverse these changes. Tackling climate change is the pro-growth strategy for the longer term, and it can be done in a way that does not cap the aspirations for growth of rich or poor countries. The earlier effective action is taken, the less costly it will be.<sup>9</sup>

Referring to Australia's region, the Lowy Institute for International Policy has noted:

... even if not catastrophic in themselves, the cumulative impact of rising temperatures, sea levels and more mega droughts on agriculture, fresh water and energy could threaten the security of states in Australia's neighbourhood by reducing their carrying capacity below a minimum threshold, thereby undermining the legitimacy and response capabilities of their governments and jeopardising the security of their citizens. Where climate change coincides with other transnational challenges to security, such as terrorism or pandemic diseases, or adds to pre-existing ethnic and social tensions, then the impact will be magnified.<sup>10</sup>

While some climate change is unavoidable, the negative effects of warming can be substantially diminished by prompt and concerted action. The sooner we stabilise and then reduce atmospheric concentrations of greenhouse gases, the sooner we can reduce our impact on the climate and minimise the risk of dangerous change.

## Box 1.1: The Intergovernmental Panel on Climate Change

The IPCC is a scientific intergovernmental body set up by the World Meteorological Organization and the United Nations Environment Programme. The IPCC was established in 1988 to provide decision makers and others interested in climate change with an objective source of information about climate change.

The IPCC's role is to comprehensively, objectively, openly and transparently assess the latest scientific, technical and socioeconomic literature relevant to understanding the risk of human-induced climate change, its observed and projected impacts, and options for adaptation and mitigation. The information the IPCC provides in its reports is based on scientific evidence and reflects existing viewpoints within the scientific community. The comprehensiveness of the scientific content is achieved through contributions from experts in all regions of the world and all relevant disciplines.

Because of its intergovernmental nature, the IPCC is able to provide relevant policy information to decision makers, backed by reports of high scientific and technical standard that aim to reflect a range of views, expertise and wide geographical coverage. IPCC reports are prepared by teams of authors who have been selected specifically for this task based on their expertise. The reports undergo a two-stage review—a first peer-review by experts and a second by experts and governments.

In 2007 the IPCC was awarded the Nobel Peace Prize for its 'efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change'.

# 1.1.1 Impacts of climate change on the Australian economy

Australia is already a hot, dry country, and small variations in climate will be more damaging to us than to other developed countries. Infrastructure, towns and cities, and food production are all based on assumptions about the climate, whether those assumptions are about the frequency of storms, the height of tidal surges, or rain and temperature patterns.

Climate change will also affect Australia's neighbours. Sea-levels rising could cause major disruption in the coastal cities of Asia, a region on which Australia has increasing economic inter-dependence. Sea-level rise could also inundate parts of neighbouring countries, such as the smaller Pacific islands, Indonesia, and Papua New Guinea, and the ensuing social disruption has the potential to destabilise the region<sup>11</sup>.

Australia's economic growth in recent years has boosted domestic living standards and consumption. This growth has been supported by rapidly expanding developing economies, particularly in the Asia–Pacific region, driving international demand and higher prices for Australia's abundant mineral resources, including coal, iron ore, bauxite and alumina,<sup>12</sup> although these have declined recently from historical peaks in light of the global financial crisis. Australia is also a net energy exporter—exports from this sector have grown by almost 28 per cent between 2000-01 and 2005-06<sup>13</sup> to \$39.4 billion or 4.1 per cent of gross domestic product.

Continued growth in developing economies could be threatened by the impacts of climate change as expenditure is diverted to cope with severe weather events, food crop failures, droughts, and population displacement.<sup>14</sup>

# Box 1.2: The Garnaut Climate Change Review

In April 2007 the governments of the eight states and territories of Australia and the then Leader of the Opposition, Kevin Rudd, commissioned the Garnaut Climate Change Review. The Australian Government joined the review in January 2008 following the election of the current Government in November 2007. Professor Ross Garnaut was commissioned to report by 30 September 2008 on:

- the likely effect of human-induced climate change on Australia's economy, environment and water resources in the absence of effective national and international efforts to substantially cut greenhouse gas emissions
- the possible ameliorating effects of international policy reform on climate change, and the costs and benefits of various international and Australian policy interventions on Australian economic activity
- the role that Australia can play in the development and implementation of effective international policies on climate change.

In the light of these findings, the review was to recommend medium- to long-term policy options for Australia and a time path for their implementation which, taking the costs and benefits of domestic and international policies on climate change into account, would produce the best possible outcomes for Australia.

The Garnaut Final Report was presented to the Government and publicly released on 30 September 2008. The full report is available at www.garnautreview.org.au.

The findings of the Garnaut Final Report suggest that, in the long term, the costs of inaction will be greater than the costs of mitigation. In addition, the aggregate costs of action are modest, and the benefits of action (and the cost of inaction) increase over time, becoming more pronounced in the second half of this century and beyond.

The Garnaut Final Report predicts that, in a world of unmitigated climate change, real wages will be 12 per cent lower by 2100 than in a world without climate change. This is due to the reduced demand for labour in the second half of the century as a result of climate change.

#### Box 1.3: Economic modelling of the costs of climate change

Many of the projected impacts of climate change contain significant uncertainties, making it difficult to quantify economic impacts. While economic modelling results may usefully inform policy, many other factors must also be considered, particularly with a problem as complex as climate change.

The Garnaut Final Report identified four types of costs that could be used to quantify the economic costs of climate change and mitigation. However, only one of these, the so-called Type 1 costs, could be captured in a model.

- Type 1 costs are currently measurable market impacts of climate change that can be avoided by mitigation.
- Type 2 costs are market impacts that are not readily measurable, but can be estimated.
- Type 3 costs represent insurance against severe future impacts of climate change.
- Type 4 costs represent protection for those things that Australians value, but which do not have a market price, such as deterioration of environmental assets or loss of biodiversity.

Garnaut makes the point that, while we can only model Type 1 costs and estimate Type 2 costs, the benefits that derive from investment in avoiding Type 3 and Type 4 costs are likely to be very significant.<sup>15</sup> For example, a model cannot assign costs to the degradation of the Great Barrier Reef and other national environmental assets, or to the impacts on human health and the Australian way of life that would be avoided by climate change mitigation. However, those attributes have intrinsic value to the nation, and should be considered in formulating a response.

Sector-by-sector analysis in the Garnaut Final Report identified the agriculture and mining sectors as those facing the highest economic impacts from unmitigated climate change by the end of the century. Some 20 per cent of GNP losses will come from declining agricultural production, and mining sector output is predicted to decline by more than 13 per cent, with international demand for coal falling by almost 23 per cent. To put these figures in perspective, mining contributed 7 per cent of Australian GDP in 2006–07, and in a world without climate change was predicted to provide 10.2 per cent of GDP by the end of the century.<sup>16</sup>

# 1.1.2 A clear case for action

Analysis presented in the Garnaut Final Report builds a strong case for responding to climate change with mitigation action. The Garnaut Final Report observes that 'the overall cost to the Australia economy is manageable and in the order of one tenth of one per cent of annual economic growth'<sup>17</sup> and concludes that 'the costs of well-designed mitigation, substantial as they are, would not end economic growth in Australia, its developing country neighbours or the global economy; unmitigated climate change probably would'.<sup>18</sup>

# Policy position 1.1

The Government accepts the key findings of the Garnaut Climate Change Review Final Report that:

- a fair and effective global agreement delivering deep cuts in emissions consistent with stabilising concentrations of greenhouse gases at around 450 parts per million or lower would be in Australia's interests
- achieving global commitment to emissions reductions of this order appears unlikely in the next commitment period
- the most prospective pathway to this goal is to embark on global action that reduces the risks of dangerous climate change and builds confidence that deep cuts in emissions are compatible with continuing economic growth and improved living standards.

Economies can respond more efficiently to new circumstances when businesses and individuals have certainty about long-term direction. Starting as soon as possible on a gradual adjustment to a low-carbon economy will give them the opportunity to plan their adjustment pathways and manage changes in technology, equipment and skills requirements, and will minimise the risk of stranding existing long-lived assets<sup>19</sup>. This will help to reduce the costs of mitigation.

In contrast, a wait-and-see approach leaves the economy exposed to far more serious future adjustment costs that could leave assets stranded, workers unemployed, and households exposed to rising costs. All these risks would drive up the cost of mitigation, and might even put limits on effective mitigation as capital becomes constrained. There is a real risk that delaying action will mean bigger changes will need to be made more rapidly, and painfully, in the future.

Business cycles and economic shocks, such as the 2008 global financial crisis, can have a substantial impact on the economy in the short term. However, this does not mean Australia should delay responding to long term reform needs such as climate change. Taking measures to address climate change now, while not without costs, will place the economy in a better position over the longer term and avoid the need for large and sudden adjustments in the carbon intensity of the economy.

It is also important to remember that the Australian community stands to gain many benefits from a comprehensive response to climate change. Modelling conducted by the CSIRO suggests that taking action to reduce Australia's greenhouse gas emissions could catalyse strong jobs growth over the next 10 years, adding from 230 000 to 340 000 new jobs—in addition to normal employment turnover—in the transport, construction, agriculture, manufacturing and mining sectors.<sup>20</sup> A comparison can be drawn with the process of Australian tariff reform: while there were adjustment costs and some sectors were affected more than others (and received appropriate transitional assistance), the overall impact on the economy was positive. Tariff reform significantly contributed to Australia being able to weather the Asian financial crisis in the late 1990s much better than many other developed economies.

One of Australia's major opportunities lies in being well placed to provide the necessary financial services to support developing carbon markets in the Asia–Pacific region. Australia has significant competitive advantages as a potential hub for emissions trading and related financial services in our region. We are a regional commercial centre with world-class financial institutions, developed capital markets, a skilled workforce, high standards of corporate, financial and regulatory governance, and political stability. Australia also has a wealth of professional experience in developing and implementing trading schemes, such as the Mandatory Renewable Energy Target and the NSW Greenhouse Gas Reduction Scheme, with over 75 million tonnes of  $CO_2$  equivalent being traded through the latter since 2003.<sup>21</sup> The World Bank reports that the global volume of carbon traded almost doubled from 1745 million tonnes in 2006 to 2983 million tonnes in 2007.<sup>22</sup>

# 1.2 The Government's climate change strategy

Given the risks that climate change poses to Australia, it is in our national interest to help forge an effective global response to climate change and to begin the transformation that will deliver a safe society, a strong economy, high living standards and growing job opportunities into the future.

Broad-based market responses to climate change allow abatement to happen where and when it is most cost effective. By contrast, regulatory approaches alone often target highly visible (but not necessarily the most potent) sources of carbon pollution, leaving untapped more cost-effective forms of abatement. Using regulatory approaches alone would be likely to increase overall abatement costs, making it more difficult to achieve an effective global consensus. Market-based approaches are therefore clearly in Australia's long-term interests as they both minimise the cost of abatement and provide flexibility in international abatement responses.

It is likely that developed countries will be expected to collectively contribute more than any global average figure to the global emissions reduction effort. Australia's social and economic characteristics, especially our growing population and relatively emissions-intensive economy, mean that we will have higher adjustment costs than many other developed countries to reach ostensibly similar goals. Those costs will be considerations in shaping the pace of Australia's effort. Australia is ready to participate in a comprehensive agreement under which all nations commit to restrain their emissions, and is committed to making its full contribution.

The Government's climate change policy is built on three pillars—reducing Australia's carbon pollution, adapting to the impacts climate change that we cannot avoid, and helping to shape a global solution. The following three sections elaborate on these three important policy areas.

# 1.2.1 Pillar 1: Reducing Australia's carbon pollution

Given Australia's economic circumstances and high degree of vulnerability to climate change, the Government's approach to domestic mitigation is designed to transform our economy, putting it on a low-emissions path, and to build Australia's international credibility and strengthen our ability to influence international discussions on an effective global solution.

The Government has provided leadership and clear direction for the national effort by committing to a medium-term national target range of reducing emissions by between five per cent and 15 per cent of 2000 levels by 2020, and a long-term emissions reduction target of 60 per cent below 2000 levels by 2050. The target and the trajectory towards it are discussed in Chapter 4.

Meeting the emissions reductions targets will be challenging. Australia's emissions have been growing rapidly since 1995. Monitoring and reporting of Australia's emissions by the Department of Climate Change<sup>23</sup> suggest that, while Australia is likely to meet its Kyoto Protocol target of limiting emissions in the 2008–2012 period to an average of 108 per cent of 1990 levels, emissions will increase to 120 per cent of 1990 levels by 2020 without additional policy measures.<sup>24</sup> This indicates considerable momentum in national emissions.

Substantially reducing Australia's national emissions will involve the most significant structural reform of the economy since the 1980s, although the reforms required to respond to climate change will take place over a longer timeframe. The reform process will be challenging, and will require the Government to implement responsible economic policies focused on reducing emissions at the lowest possible cost over the long term.

The Australian economy is well placed to undertake the necessary structural reform. Successive waves of microeconomic reform have increased the flexibility of the Australian economy, allowing us to respond to shocks such as the Asian financial crisis, the world economic slowdown of the start of this century, and the current global financial crisis. Australia's economy is in a much stronger position to withstand the fallout from the 2008 global financial crisis than most other countries. Past policies have provided significant monetary and fiscal policy flexibility to allow Australia to respond to deteriorating global conditions. Economic growth remains solid and compares favourably with other advanced economies that are close to, or in, recession. Australia will continue to be a major beneficiary of the growth in demand resulting from the industrialisation of emerging economies such as China and India, even if that growth temporarily slows.

The Government's economic reform agenda, including the reforms being pursued through the Council of Australian Governments agenda and Australia's Future Tax System Review, will further enhance the economy's capacity for structural reform. As in other policy areas, choosing economically inefficient options to reduce emissions will increase the economic cost, raise the burden on individuals and firms and reduce our capacity to assist industries and households through the transition.

The Government will manage the transformation to a low-carbon economy through the implementation of the Carbon Pollution Reduction Scheme, an expanded national Renewable Energy Target, investment in renewable energy technologies and in the demonstration of carbon capture and storage and action on energy efficiency. Together, these elements comprise the four arms of the Government's climate change emissions reduction strategy, and will ensure that Australia has the incentives to reduce its emissions, can develop the technologies to help reduce greenhouse gas emissions both here and abroad, and can contribute to helping the international community to reach a global solution.

## The Carbon Pollution Reduction Scheme

To help achieve our emissions reduction target, the Government will introduce an emissions trading scheme as the centrepiece of Australia's domestic emissions reduction strategy. Australia's Carbon Pollution Reduction Scheme (the Scheme) will set an emissions cap, which will gradually be reduced over time. This will help ensure Australia's ongoing prosperity by placing Australia on a low-emissions path in a way that best manages the economic costs of transition and provides incentives to develop and invest in low-emissions technologies. The Scheme will be the key mechanism for achieving substantial emissions mitigation in a responsible manner and at the lowest possible cost. The Scheme is a continuation of Australia's economic reform path, addressing economic and social issues by harnessing flexible market processes. Part 2 of this White Paper sets out in detail the structure and operation of the Scheme.

## Assisting the transition to a low-carbon economy

While the Scheme will provide the mechanism for achieving low-cost national abatement, some additional mitigation measures will still be required to assist the transition to a low-carbon economy. Complementary mitigation measures will work alongside the Scheme, and Part 3 of this White Paper discusses the support measures the Government will implement to smooth the transitional path for businesses and the broader community, as well as additional measures to support emissions reductions.

The complementary measures outlined in this White Paper are designed to assist the transition to a lower carbon economy by targeting market failures that are not adequately addressed by the Scheme, and by assisting to reduce the cost of mitigation. In some circumstances complementary measures are transitional because, although they may be necessary to address a specific failure in the short- to medium-term, they are not expected to be helpful or required in the longer term. The complementary measures will inform and educate, help drive mitigation in sectors not yet covered by the Scheme, support research, development and demonstration of new technologies, and address non-price barriers to reducing emissions.

Through the Strategic Review of Australian Government Climate Change Programs (the Wilkins Review), the Government is progressing a process to review existing climate change measures to ensure that they are consistent with the Scheme.

#### Assistance for households

The Government is committed to protecting the poorest and most vulnerable in society, assisting households, and helping all Australians to contribute to the critical national effort to reduce greenhouse gas emissions and transition Australia to a low-carbon economy. Changes to the tax and transfer systems and the introduction of new energy efficiency measures will help alleviate increases to the cost of living arising from the Scheme.

This direct assistance will help avoid adverse income or distributional effects arising from the Scheme and will ensure the most vulnerable households in society are protected.

# **Business and Industry**

While the Scheme will deliver mitigation at the lowest possible cost and scheme costs will be modest in aggregate, the Government recognises that costs may be concentrated in certain sectors of the economy or in particular regions of Australia. As a result businesses, industries and regions may need assistance to prepare for the introduction of a carbon price and a smooth transition to a low-carbon economy.

The Government will establish the Climate Change Action Fund to assist in breaking down market barriers that may raise the cost of responding to a carbon price, and to encourage investment in low-emissions technology. The Fund will also provide targeted assistance for sectors, businesses, regions, communities and workers that may be disproportionately affected by the introduction of the Scheme because of their economic reliance on industries that are more exposed to a carbon price.

# **Energy Transformation**

The Renewable Energy Target will ensure that 20 per cent of our electricity is generated from renewable sources by 2020. The Renewable Energy Target is an important transitional measure to stimulate the deployment of renewable energy technologies, and is supported by investment through the Renewable Energy Fund and other renewable energy industry assistance measures which will facilitate the adoption of renewable energy technologies in Australia.

Carbon capture and storage (CCS) is likely to be a key component of the global solution to climate change. Coal will continue to be a major energy source for the world over coming decades. For Australia, coal will be the main source of our energy supply into the future and a major contributor to our export revenue. All major models of ways to achieve lower greenhouse gas emissions expect a significant part of the reduction to be achieved through the use of CCS. The Government has announced the Global Carbon Capture and Storage Initiative to accelerate the scaling up and deployment of CCS technology across the world.

Energy efficiency is the final piece of the emissions reduction strategy. Energy use is the key driver of emissions growth in Australia. The Renewable Energy Target and CCS will reduce the emissions produced and released in generating energy, but there is also considerable scope to increase the efficiency of energy use. Using energy more efficiently can significantly reduce the cost of greenhouse gas abatement and ease the transition to a low-carbon economy. There are several impediments to the uptake of energy efficiency measures, including gaps in the information available to households and businesses to make informed decisions. By becoming more energy efficient, households can reduce the cost impacts of the Scheme. Prior to the commencement of the Scheme, the Government will deliver household energy efficiency initiatives building on existing programs to help households do their bit to tackle climate change and reduce energy bills.

# 1.2.2 Pillar 2: Adapting to unavoidable climate change

Even if global mitigation efforts are successful, scientific evidence indicates that some climate change is unavoidable and we will need to adapt to it. It will be crucial to harness the full capacity of our research community to gain the necessary scientific understanding of climate change impacts. Those impacts create considerable risks to assets, investments, environments,

communities and regional economies. Wise investments now to adapt to those changes can reduce costs in the future.

An effective response to the challenge of climate change will require individuals, businesses, communities and governments to take steps to adapt to climate change. Individuals and businesses are often best placed to manage the risks associated with their assets—the benefits they obtain from adapting to climate change provide an incentive for them to manage exposure to those risks.

The Government has an important role in establishing optimal conditions for adaptation action throughout Australia. Individuals and businesses need targeted information and tools to support effective adaptation decisions; sectors and regions need to understand their vulnerabilities; and planning and regulatory mechanisms need to be reviewed so that decisions can be taken today, particularly those involving long-lived assets, do not increase Australia's future vulnerability to climate change.

# Box 1.4: A national approach to adaptation

The National Climate Change Adaptation Framework has been developed by the Australian Government and all State and Territory governments to build our capacity to respond effectively to climate change, and outlines action to reduce regional and sectoral vulnerability.

The Australian Government is already supporting the implementation of key actions under the framework, including:

- establishing the National Climate Change Adaptation Facility that will lead the scientific community in a national inter-disciplinary effort to generate biophysical, social and economic information needed by decision makers and the community to help manage the risks of climate change impacts
- priority research directed at the needs of decision-makers priority research, such as identifying future increased risks of vector-borne diseases arising from climate change, identifying opportunities for commercial fishers to change target species, and governance needs for the conservation of Australia's biodiversity to adapt to climate change impacts.
- establishing the CSIRO Climate Change Adaptation Flagship.

In addition, the Government is working with key sectors to address areas of vulnerability. For example, the Government has committed \$12.9 billion to fund a new 10-year plan, Water for the Future, which aims to take action to adapt to climate change, use water wisely, secure water supplies and improve environmental outcomes for Australia's water resources. Assessment of the vulnerability of coastal areas and infrastructure to climate change impacts is underway; and the Government will continue to provide support for decisions-makers through information, tools, and skills to assist with adaptation planning.

# 1.2.3 Pillar 3: Helping to shape a global solution

The third pillar recognises that climate change is a global problem that requires a global solution. Australia has the standing and capacity to positively shape an international agreement that addresses climate change beyond the first compliance period of the Kyoto Protocol, which ends in 2012.

Australia's domestic action will affect our international credibility, and therefore our ability to help shape a global solution. The Government's long-term national emissions reduction target (60 per cent on 2000 levels by 2050) confirms Australia's place in the global effort, and our development of a comprehensive policy framework shows that Australia is serious about achieving it. This is underpinned by the Government's commitment to a 2020 target range for emissions reduction. Developing a flexible and workable emissions trading model also demonstrates to other countries that they can also take on emissions targets while maintaining robust economic growth and rising living standards.

Australia is responsible for only a relatively small proportion of global emissions, and some have used this fact to argue that we should not pursue ambitious reduction targets until there is a comprehensive global agreement. That position ignores that Australia's climate and economy are likely to be strongly affected by climate change, and that we have a strong and direct national interest in pursuing a global solution. As the Garnaut Final Report stated, what Australia does matters and when we do it matters.<sup>25</sup> Being part of the group of countries leading the global response will maintain Australia's seat at the international table and enable Australia to play a strong and constructive role in the development of the global mitigation regime. It will also reduce the economic costs and enhance the opportunities associated with moving to a low-carbon world. Earlier action also allows a more gradual transition to a low-carbon economy, allowing individuals and businesses to adjust and learn over time. The learning process will give Australia a competitive advantage over countries that persist with economic structures which exclude a price on carbon.

It is in Australia's national interest to signal our intentions to take strong mitigation measures. Doing so will improve the likelihood of obtaining a strong and effective long-term global agreement to stabilise emissions at levels consistent with avoiding dangerous climate change. Australia considers it essential that all countries, both developed and developing, can and do participate in global efforts to reduce emissions. While taking into account the circumstances of individual countries, Australia is working toward a post-2012 outcome that is comprehensive, fair, and effective.

To strengthen the multilateral response to climate change, a key objective for Australia is to broaden the number of countries willing to make commitments. While all countries should act to mitigate climate change, the top 15 emitters are responsible for around 80 per cent of global greenhouse gas emissions (Table 1.1). In order to avoid the risks of dangerous climate change, major developing economies will need to commit to actions to restrain their emissions in a post-2012 framework.

	Proportion of global emissions (%)		
Country	2005	2030	2100
United States	18.3	11.1	5.1
China	18.3	33.0	21.2
European Union	12.6	7.1	3.6
Former Soviet Union	8.4	6.9	4.5
India	4.6	8.0	16.8
Japan	3.5	1.8	0.7
Canada	2	1.3	1.0
Indonesia	2	1.8	2.4
Australia	1.5	1.1	1.0
South Africa	1.3	1.3	1.4
OPEC	4.7	5.4	7.8
Other south-east and east Asian countries	4.3	2.9	3.3
Rest of the world	18.5	18.2	31.3

## Table 1.1: Projected share of global greenhouse gas emissions, 2005 to 2100

OPEC = Organization of Petroleum Exporting Countries.

Source: R Garnaut, The Garnaut Climate Change Review, Cambridge University Press, 2008, p. 65.

The Bali Action Plan, agreed at the 2007 Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC), envisages that Australia and other advanced countries will adopt economy-wide targets. Developing countries also need to take action to slow the growth of their emissions while they continue their economic and social development. An effective post-2012 outcome needs to reflect actions by all key countries to binding international commitments, in which countries contribute according to their respective capabilities. The Government fully expects that the nature and scale of commitments will differ, but all nations need to play their part and make nationally appropriate binding commitments to do so.

Australia is also part of several important international initiatives that are making positive practical contributions to reducing greenhouse gas emissions. Those initiatives are helping to build trust and understanding, and improve the prospects of a cooperative international agreement. For example, Australia is working through the International Forest Carbon Initiative to test possible future international approaches to emissions accounting and emissions reductions in the forestry sector. There is considerable international cooperation on clean energy technology, and the Government, its key research institutions and business participate in all significant initiatives. Carbon capture and storage, solar and geothermal technologies have been identified as strategic priorities for Australia. In the area of adaptation responses, Australia will be called upon to help vulnerable countries in the region adapt to unavoidable climate change. The Government's International Climate Change Adaptation Initiative will plan and undertake practical on-ground actions to respond to the impacts of climate change in developing countries, with a focus on the Pacific region. Assisting the region in this way will help ameliorate potential regional impacts and support sustainable development.

# 1.3 The White Paper

This White Paper is the culmination of a long and intensive process of policy development and stakeholder consultation. It builds on work that began in 2007 through the National Emissions Trading Taskforce and the former Prime Minister's Task Group on Emissions Trading, on the Garnaut Final Report, and on economic modelling work by the Treasury. It develops and refines the scheme design presented in the Carbon Pollution Reduction Scheme Green Paper.

The Green Paper primarily presented options for the design of the Scheme. After its publication, the Government received more than 1000 submissions relating to all aspects of climate change policy. More than 2400 people attended 18 public consultation sessions and workshops held in capital cities and regional areas. More than 260 companies attended technical workshops and meetings. Six industries and non-government roundtables were held with representatives from 45 organisations. The extent of the response to the Green Paper confirms the depth of the Australian public's concern about climate change.

While emissions trading will be the primary mechanism to achieve Australia's emissions reductions goals, the Scheme will commence as part of a broader policy response. The White Paper is therefore broader in scope, outlining the science of global climate change and discussing Australia's role in a global solution, the selection of the national medium-term target and trajectory, and a range of complementary measures that will smooth the transition to a lower-carbon economy. Table 1.2, at the end of this chapter, summarises the issues covered in the Green Paper and the White Paper.

Climate change will affect every aspect of Australian society and adaptation will be an important part of Australia's response. This White Paper does not analyse adaptation in detail. The Government has developed a National Adaptation Framework in cooperation with the states and territories, and will continue to announce adaptation policies and programs in the future.

# **Reducing Australia's carbon pollution**

The White Paper sets out the context within which the Government's climate change policy has been developed. The architecture of the Government's climate change framework and a summary of the White Paper and the next steps are laid out in this chapter. Chapter 2 outlines the science of climate change and briefly touches on the Government's adaptation approach. Australia's role in global efforts to reach a global agreement to reduce greenhouse gas emissions is discussed in Chapter 3. Policies to reduce emissions rest on the foundation of the national greenhouse gas emissions reduction target. The medium-term national target and the trajectory toward it are discussed in Chapter 4.

# The Carbon Pollution Reduction Scheme

The White Paper is concerned with the design and operation of the Carbon Pollution Reduction Scheme. Chapter 5 covers the framework of the Scheme and describes how emissions trading works. Emissions trading will deliver mitigation at the lowest possible cost when the greatest possible proportion of the economy's greenhouse gas emissions can covered by the Scheme. The Government recognises that full coverage may not be possible immediately, and in Chapter 6 has set out criteria and a timetable for coverage of different sectors.

The Scheme will establish a market in carbon pollution permits, the supply of which will be governed by the Scheme cap. Permits will be auctioned each year and subsequently traded. Demand for permits will be created by participants in the Scheme, who will need to surrender permits each year to account for their emissions. Reporting and compliance are described in Chapter 7, the mechanisms of this new market are discussed in chapters, 8, 9 and 10, and trade in international markets is discussed in Chapter 11.

The Government recognises that some industries will require transitional assistance to manage impacts on competitiveness and to adjust to a carbon price. Assistance to emissions-intensive trade-exposed industries is outlined in Chapter 12, and assistance to other strongly affected industries is described in Chapter 13. Tax and accounting matters relating to the Scheme are discussed in Chapter 14, transitional issues in Chapter 15, and governance arrangements and implementation in Chapters 16.

## **Complementary and supporting measures**

The White Paper discusses complementary and supporting measures that are intended to help households and businesses move smoothly into a world that incorporates a carbon price. The Government recognises that there may be a modest rise in the cost of living as a result of the Scheme, and assistance to households through the tax and payments system to help meet those costs is described in Chapter 17. Businesses and regions will also face challenges as they adjust to the lower-carbon economy. The Government will help them meet those challenges through the Climate Change Action Fund. Chapter 18 describes the objectives and broad scope for the fund.

Chapter 19 sets out the principles agreed through the COAG Working Group on Climate Change and Water to guide the development of new programs and policies and assess existing measures.

Appendices provide supplementary information:

- Appendix A lists public submissions in response to the Green Paper
- Appendix B compares design aspects of the Scheme to those from the Green Paper, the Garnaut Final Report, and the New Zealand and European Union emissions trading schemes
- Appendix C discusses implementing the Kyoto Protocol in Australia
- Appendix D outlines possible strongly affected industries
- Appendix E has a budget summary, including measures tables
- A glossary and a table of acronyms complete the White Paper.

Policy pillar	Policy instruments	Green Paper	White Paper	Part/Chapter
1. Mitigation	National target	Options for target and trajectory	Quantified 2020 target and initial trajectory	Part 1, Chapter 4
	Carbon Pollution Reduction Scheme	Scheme design options	Detailed design framework	Part 2, Chapters 5–16
Complementary measures:				
	<ul> <li>strongly affected industries</li> </ul>	Rationale and eligibility for assistance	Detailed assistance formulas	Part 3, Chapter 18
	households	High-level discussion	Assistance through the tax and payments system	Part 3, Chapter 17
	other transitional     issues	High-level discussion	Objectives and broad scope of Climate Change Action Fund	Part 3, Chapter 18
	Renewable Energy     Target	Not discussed	Key issues outlined	Part 3, Chapter 19
	Carbon capture     and storage	Not discussed	Key issues outlined	Part 3, Chapter 19
	Energy Efficiency	Not discussed	Key issues outlined	Part 3, Chapter 19
2. Adaptation	National Climate Change Adaptation Framework	Not discussed	Key issues outlined	Part 1, Chapters 1 and 2
3. International participation	Negotiation of post-2012 framework	Not discussed	Key issues outlined	Part 1, Chapters 2, 3 and 4
	Links between domestic and international carbon markets	Options and issues for international linkages	Detailed rules for international links	Part 2, Chapter 11

#### Table 1.2: Summary of Green Paper and White Paper coverage

#### **Next steps**

While the White Paper is an important step forward, it is not the end point of the Australian Government's climate change policy development. Rather, it is the foundation on which an ongoing response will be built. Drafting for legislation to enact the Scheme is under way, and an exposure draft is expected to be released for public comment in early 2009. The legislation will be based on the positions outlined in Part 2 of the White Paper.

Design of the expanded national Renewable Energy Target is also well under way. Legislative and regulatory amendments to implement the design of the Renewable Energy Target are expected to be in place by mid-2009, with revised targets commencing from 2010.

Not every measure in the White Paper will require legislation before it can commence. Some complementary measures (such as the National Low Emissions Coal Initiative) are already underway. Others, such as the Climate Change Action Fund will be rolled out before the Scheme commences to better assist businesses to prepare for the onset of a carbon price. Prior to the commencement of the Scheme, the Government will deliver household energy efficiency initiatives building on existing programs to help households do their bit to tackle climate change and reduce energy bills. Additional measures will also be developed to assist the land sectors contribute to reducing emissions until such time as they are covered by the Scheme and to transition into the Scheme at a later date.

There is no single solution to the global problem of climate change. Environmental and economic costs of inaction on climate change are already beginning to be felt, and there is no case to delay any longer. The Government remains committed to reducing Australia's greenhouse gas emissions in an economically responsible manner, creating a prosperous
low-carbon economy in which Australia's environment is protected and Australian society continues to flourish.

- 1 Intergovernmental Panel on Climate Change, Fourth assessment report, Synthesis report, 2007.
- 2 Intergovernmental Panel on Climate Change, Fourth assessment report, Synthesis report.
- 3 Bureau of Meteorology, Annual Climate Statement 2007, Australian Government, Canberra, www-cluster.bom.gov.au/announcements/media\_releases/climate/change/20080103.shtml, accessed 21 October 2008.
- 4 Intergovernmental Panel on Climate Change, Fourth assessment report, Synthesis report.
- 5 S Rahmstorf, A Cazenave, JA Church, JE Hansen, R Keeling, DE Parker & RCJ Somerville, 'Recent climate change observations compared to projections', *Science*, vol. 316, 2007, p. 709, doi: 10.1126/science.1136843.
- 6 EJ Rohling, K Grant, CH Hemleben, M Siddall, BAA Hoogakker, M Bolshaw & M Kucera, 'High rates of sea level rise during the last interglacial period', *Nature Geoscience*, 2008, vol. 1, pp. 38–42.
- 7 Intergovernmental Panel on Climate Change, Fourth assessment report, Synthesis report.
- 8 Intergovernmental Panel on Climate Change, Fourth assessment report, Synthesis report.
- 9 N Stern & Cabinet Office HM Treasury, *The Economics of Climate Change: The Stern Review*, Cambridge University Press 2007.
- 10 A Dupont & G Pearman, *Heating up the planet: Climate change and security*, Lowy Paper 12, Lowy Institute for International Policy, 2006.
- 11 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008, Chapter 6.
- 12 Department of Foreign Affairs and Trade, Composition of Trade Australia 2006–07.
- 13 Australian Bureau of Statistics, Year Book Australia 2008, Commonwealth of Australia, 2008
- 14 R Garnaut, The Garnaut Climate Change Review: Final report, Chapter 6.
- 15 R Garnaut, The Garnaut Climate Change Review: Final report, Chapter 11
- 16 R Garnaut, The Garnaut Climate Change Review: Final report, Chapter 11.
- 17 R Garnaut, The Garnaut Climate Change Review: Final report, Chapter 12.
- 18 R Garnaut, The Garnaut Climate Change Review: Final report, Chapter 11.
- 19 Stranded assets are those that are no longer economically viable due to a change in circumstance, even though they are viable from an engineering point of view.
- 20 S Hatfield Dodds, G Turner, H Schandl & T Doss, Growing the green collar economy: Skills and labour challenges in reducing our greenhouse emissions and national environmental footprint, report to the Dusseldorp Skills Forum, CSIRO Sustainable Ecosystems, Canberra, 2008.
- 21 Independent Pricing and Regulatory Tribunal of New South Wales, *Compliance and Operation of the NSW Greenhouse Gas Reduction Scheme during* 2007, 2008.
- 22 K Capoor & P Ambrosi, State and trends of the carbon market 2008, The World Bank, 2008.
- 23 Department of Climate Change, *Tracking to the Kyoto target: Australia's greenhouse emissions trends 1990 to 2008-2012 and 2020*, Commonwealth of Australia, 2008.

25 R Garnaut, The Garnaut Climate Change Review: Final report, Chapter 12.

<sup>24</sup> Modelling conducted by the Australian Treasury (published in *Australia's low pollution future (2008)*) used scenarios to explore the potential economic effects of climate mitigation policy on Australia. Each scenario represents, in a stylised way, a different possible future, including levels of greenhouse emissions, which may differ from those projected in *Tracking to the Kyoto target*. The scenarios developed and presented by the Treasury in *Australia's low pollution future* are illustrative and do not represent the official policy or negotiating position of the Australian Government, are not an official Government or Treasury forecast, and are not an official projection of Australia's future greenhouse gas emissions.

# 2 The need for action

Failure to reduce global greenhouse gas emissions will result in changes to our climate that will challenge our ability to adapt human settlements and agriculture, and will bring very high risks of widespread species extinctions and irreversible environmental damage.

Over the past two decades, Australian climate change science has contributed to a robust understanding of the Earth's climate system and the impacts of human-induced greenhouse gas emissions. Climate change is a major economic, social and environmental challenge for Australia and the world that will need to be addressed by this generation and those to come.

This chapter is organised as follows:

- Section 2.1 describes the state of climate change science.
- Section 2.2 explains three scenarios used for comparisons—without emissions mitigation, and with greenhouse gas concentrations stabilised at 450 parts per million (ppm) and 550 ppm.
- Section 2.3 outlines global impacts under the three scenarios.
- Section 2.4 discusses observed and projected climate change in Australia.
- Section 2.5 outlines the effects of projected climate change on Australia's economy, society and security.

## 2.1 Climate change science

In 2007, the Intergovernmental Panel on Climate Change (IPCC) concluded that global warming is 'unequivocal' and that it is very likely that human activity has been the main driver of rising global temperatures since the 1950s.<sup>1</sup>

The science of climate change presented in the IPCC's Fourth Assessment Report is strong. There are multiple lines of evidence in the report showing that the earth's average surface temperature has risen nearly 0.76°C (degrees Celsius) since 1850, the earliest year for which we have reliable records. Many other changes in climate have been observed—in wind patterns, precipitation, sea ice and ice sheets, and in aspects of extreme weather.<sup>2</sup> Because of the accumulation of greenhouse gases already in the atmosphere, the world is now committed to centuries of warming, shifting weather patterns and rising seas.

The comprehensive information in the IPCC reports is based on peer-reviewed, published scientific evidence from relevant experts from all regions. Each new assessment report is probably the most scrutinised scientific document in the world, and reflects a progressive strengthening of our understanding of climate change.

New data and scientific understanding compiled since last year's Fourth Assessment Report are starting to paint an even more worrying picture of climate change.

Recent research has found that global greenhouse gas emissions have grown rapidly in the early twenty-first century and are tracking above the upper bounds of the scenarios modelled by the IPCC.<sup>3</sup> Global mean temperature and sea-level rise are at the upper end of the range of projections. There is also increasing concern about the stability of the Greenland and west Antarctic ice sheets, with major implications for sea-level rise over the longer term.

Modelling by the Treasury and the in the Garnaut Final Report shows that, if emissions continue to increase without effective mitigation, by the end of the century, the concentration of long-lived greenhouse gases in the atmosphere will be around 1565 ppm CO<sub>2</sub>-equivalent (CO<sub>2</sub>-e), with carbon dioxide (CO<sub>2</sub>) concentrations of over 1000 ppm, compared to 383 ppm in 2007 and 280 ppm in pre-industrial times. The best estimate of associated temperature increases over pre-industrial levels would be  $2.5^{\circ}$ C by 2050 and  $5.6^{\circ}$ C by the end of the century.

# 2.2 Greenhouse gas stabilisation scenarios

While it is too late to stop all human-caused climate change, warming can be substantially slowed by prompt action. The sooner we stabilise<sup>4</sup> atmospheric concentrations of greenhouse gases, the sooner we reduce our impact on the climate and minimise the risk of dangerous change.

The Garnaut Final Report modelled two stabilisation strategies: the 550 ppm  $CO_2$ -e stabilisation ('550') scenario, and the 450 ppm  $CO_2$ -e stabilisation ('450') scenario:

- Stabilisation at 450 ppm CO<sub>2</sub>-e would result in around a 50 per cent chance of limiting the global mean temperature increase to 1.6°C above 1990 levels. <sup>5</sup> For a target of 450 ppm to be achieved, global emissions would have to peak and then fall at a high rate almost immediately.
- Stabilisation at 550 ppm CO<sub>2</sub>-e is likely to produce an equilibrium global mean temperature increase of 2°C above 1990 levels.

Even with the 550 and 450 stabilisation scenarios, end-of-century temperature increases above 1990 of 2.7°C and 2.1°C, respectively, are still likely. Figure 2.1 and Table 2.1 show the expected increases in global temperature associated with each of the modelled scenarios, as well as the possible maximum temperature in the 'likely' range defined by the IPCC.



Figure 2.1: Global average temperature outcomes for three emissions cases 1990-2100

Note: Solid lines show best estimate temperature outcomes. The range of likely temperatures for each scenario lies within the dotted lines. It is unlikely that temperature increases will fall below the lower dotted line for each scenario. Temperatures are derived from the MAGICC climate model. TML Wigley, MAGICC/SCENGEN 4.1: Technical Manual, National Center for Atmospheric Research, Colorado, 2003).

Source: R Garnaut, *The Garnaut Climate Change Review: Final report, Cambridge University Press*, 2008. Note: Add 0.5°C to projected future temperatures if comparing to 1850 temperatures.

# Table 2.1: Temperature increases above 1990 levels under the no-mitigation, 550 and450 scenarios

Scenario	205	50	21	00
	Best estimate	Upper end of <i>likely</i> range	Best estimate	Upper end of <i>likely</i> range
No mitigation	2.3	2.9	5.1	6.6
550 ppm	1.7	2.2	2.0	2.7
450 ppm	1.6	2.1	1.6	2.1

Note that 1990 levels are already about 0.6°C above pre-industrial (1850) levels.

Source: Interpreted from: R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.

# 2.3 Global impacts of climate change

Unmitigated climate change is very likely to result in environmental and social disruption, including significant species extinctions around the globe, threats to food production and severe health impacts, with dramatic increases in morbidity and mortality occurring from heatwaves, floods and droughts. Developing countries are especially vulnerable to climate change.

Impacts of climate change at the global scale in the no-mitigation scenario include:

- *Sea-level rise*. Many millions of people are likely to be flooded every year due to sea-level rise. The hardest hit regions will be the deltas of Asia and Africa and small islands.<sup>6</sup> Recent research indicates a sea-level rise of up to 1.4 m is plausible by 2100.<sup>7</sup>
- *Melting of the Himalayan glaciers*. These glaciers feed several of the most important rivers in Asia, which underpin the livelihoods of some of the most populous nations. Decreased freshwater availability could affect more than a billion people in Asia by 2050.<sup>8</sup>
- *Destruction of coral reefs*. Coral reefs are highly sensitive to increasing temperatures and ocean acidification, which both result from rising carbon dioxide concentrations in the atmosphere.

• *Extinction of plant, animal and other species*. The quality of many natural habitats and ecosystems is being compromised by changes in patterns of temperature and precipitation. The expected pace of climate change will be too fast to allow many species to adapt.

Many important processes within the climate and other earth systems appear to be stable until a threshold is crossed. But once that threshold is crossed, the response may be rapid and/or severe, with long-term, irreversible consequences. Important thresholds include:

- *Melting of the Greenland and west Antarctic ice sheets*. If these were to melt completely, they would add 7 m and 6 m, respectively, to global sea level.<sup>9</sup> Under a no-mitigation scenario, it is highly likely that the point of irreversible melting of the Greenland ice sheet will be reached during this century.<sup>10</sup> It would take centuries for the ice sheet to be lost.
- *Exacerbation of global warming from positive (reinforcing) feedbacks in the oceans and terrestrial systems.* The ability of the oceans and the terrestrial biosphere to absorb carbon dioxide may be reduced. Large quantities of the greenhouse gas, methane, could be unlocked from melting permafrost and from methane hydrates in the ocean.<sup>11</sup>
- A possible increase in the intensity of the El Niño—Southern Oscillation. An increase in intensity would have consequences for temperature and rainfall patterns for nations in the Pacific region.<sup>12</sup>

Serious global impacts become more likely with each increment of temperature increase. The Garnaut Final Report illustrated the likelihood of these global impacts occurring by 2100, given greenhouse gas stabilisation scenarios of 450 ppm CO<sub>2</sub>-e, 550 ppm CO<sub>2</sub>-e and no mitigation (Table 2.2).

# Table 2.2: Summary of extreme climate responses, high-consequence outcomes and ranges for tipping points for the three emissions cases by 2100

Extreme climate response or impact	450 ppm	550 ppm	No mitigation
Temperature outcomes	1.6 (0.8–2.1)°C	2 (1.1–2.7)°C	5.1 (3.0–6.6)°C
Species at risk of extinction <sup>a</sup>	7 (3–13)%	12 (4–25)%	88 (33–98)%
Likelihood of initiating large-scale melt of the Greenland ice sheet <sup>b</sup>	10 (1–31)%	26 (3–59)%	100 (71–100)%
Area of reefs above critical limits for coral bleaching <sup>c</sup>	34 (0–68)%	65 (0–81)%	99 (85–100)%
Estimated lower threshold exceeded by	2100		
Threshold for initiating accelerated disintegration of the west Antarctic ice sheet <sup>d</sup>	No	No	Yes
Threshold for changes to the variability of the El Niño—Southern Oscillation <sup>e</sup>	No	No	Yes
Threshold at which terrestrial sinks could become carbon sources <sup>f</sup>	Possibly	Possibly	Yes

(a) The percentages of all species 'committed to extinction' due to shifts in habitat caused by temperature and climate changes, from sample regions covering 20 per cent of the Earth's land surface. The upper limit is based on less comprehensive datasets and is therefore more uncertain. Source: P Sheehan, R Jones, A Jolley, B Preston, M Clarke, P Durack, S Islam & P Whetton, 'Climate change and the new world economy: Implications for the nature and timing of policy responses', *Global Environmental Change*, doi:10.1016/j.gloenvcha.2008.04.008.

(b) Cumulative probability based on four estimates from the literature. The percentage represents the likelihood of triggering the commencement of partial or complete deglaciation. This is considered virtually certain under the best estimate temperature outcomes in the no-mitigation case. Source: Sheehan et al., 'Climate change and the new world economy'.

(c) Percentage of reef area in which there is widespread mortality in slow-growing, tolerant reef species on a frequency of less than 25 years, based on a range of studies from the literature. Source: Sheehan et al., 'Climate change and the new world economy'.

(d) A range in which the threshold for initiating accelerated disintegration of the west Antarctic ice sheet is expected to occur. The outcomes combine a literature review and expert judgment. Source: TM Lenton, H Held, E Kriegler, JW Hall, W Lucht, S Rahmstorf & S Schellnhuber, 'Tipping elements in the Earth's climate system', *Proceedings of the National Academy of Sciences of the United States of America*, vol. 105, no. 6, 2008, pp. 1786–1793.

(e) A range in which the threshold for changes to the variation of El Niño—Southern Oscillation is expected to occur. The outcomes combine a literature review and expert judgment. Source: Lenton et al., 'Tipping elements in the Earth's climate system'.

(f) A range in which the threshold at which terrestrial sinks could be damaged to the extent that they become carbon sources is expected to occur. This includes a combination of outcomes from Lenton et al., 'Tipping elements in the Earth's climate system', relating to the threshold for extensive damage to the Amazon rainforest and boreal forest systems; and R Warren, 'Impacts of global climate change at different annual mean global temperature increases', in HJ Schellnhuber, C Cramer, N Nakicenovic, T Wigley and G Yohe (eds), Avoiding dangerous climate change, Cambridge University Press, Cambridge, 2006, pp. 94–131, relating to desertification leading to widespread loss of forests and grasslands.

Note: The temperatures shown are increases from 1990 levels. Source: R Garnaut, *The Garnaut Climate Change Review: Final report*, Cambridge University Press, 2008.

## 2.4 Observed and projected climate change in Australia

Changes in Australia's climate and its effects on human and natural systems are observable already, and the magnitude of impacts will grow as the climate continues to change.

#### 2.4.1 Temperature

Figure 2.2 shows that the annual average temperature in Australia has increased by  $0.9^{\circ}$ C since 1910.<sup>13</sup>

Figure 2.3 shows that the warming trend since the middle of last century has not been uniform across the country. The greatest warming has occurred in central Australia<sup>14</sup>, with high warming also in eastern Australia. In south-eastern Australia, average maximum temperatures have increased, resulting in hotter droughts. This in turn affects rainfall, evaporation and, more generally, water availability for human use.

Ocean temperature has changed at a slower pace, due to the ocean's large buffering capacity. However, substantial warming has occurred in the oceans surrounding Australia, particularly the Indian Ocean.<sup>15</sup>



Figure 2.2: Australian annual mean temperature anomalies

Note: The data shows temperature differences from the 1961–90 average. The black line shows 11-year running averages Source: Bureau of Meteorology, Prepared for R Garnaut, *The Garnaut Climate Change Review: Final report*, Cambridge University Press, 2008.





Source: Bureau of Meteorology, 2008.

http://www.bom.gov.au/cgi-bin/silo/reg/cli\_chg/trendmaps.cgi?variable=tmean&region=aus&season=0112&period=1950.

By 2030, annual average temperature over Australia is expected to be around 1°C above 1990 levels. Coastal areas will experience slightly less warming (0.7–0.9°C), whereas inland Australia will experience greater warming (1.0–1.2°C).<sup>16</sup> To place this change in perspective, a 1°C rise in temperature may lead to a 15 per cent reduction in stream flow in the Murray-Darling Basin due to factors such as increased evaporation.<sup>17</sup>

For the period 1900 to 2007, exceptionally hot years were recorded on average once every 22 years. Projections indicate that comparably hot years will occur every one to two years for the period 2010 to 2040.<sup>18</sup>

From 2030 until the end of the century, the global emissions pathway will exert a strong influence over temperature change. By 2100, with no mitigation, there will be marked temperature increases across Australia. A temperature increase of more than 3°C (compared to 1990) is very likely for most of the country, increasing to 4.9°C over an extensive area of north-western Australia. The upper end of the projections indicates that there is a 10 per cent chance of temperature increases of more than 7°C in some areas.<sup>19</sup>

#### 2.4.2 Rainfall

Since the 1950s, Australia has experienced major change in rainfall patterns, with large geographic variation (Figure 2.4). North-western Australia has seen a significant increase in annual rainfall, whereas most of the eastern seaboard and south-western Australia have seen a significant decrease.<sup>20</sup>

The rate of change in the frequency and intensity of rainfall extremes is greater than the rate of change for average rainfall.<sup>21</sup> This is marked by both an increase in exceptionally dry years and a near absence of very wet years, giving rise to drier soils and decreased river and dam inflows.



#### Figure 2.4: Trend in annual total rainfall, 1950–2007 (mm per decade)

Source: Bureau of Meteorology, 2008. http://www.bom.gov.au/cgi-bin/silo/reg/cli\_chg/trendmaps.cgi?variable=rain&region=aus&season=0112&period=1950. Rainfall patterns are influenced by a combination of factors, not just climate change. The rainfall decline in south-western Western Australia has been attributed to a combination of an increase in greenhouse gas concentrations, natural variability and land use changes. The rainfall decline observed in south-eastern Australia shares many characteristics with the decline in the south-west.<sup>22</sup> However, this region is affected to a greater extent by major climate phenomena such as the El Niño—Southern Oscillation and the subtropical ridge, which is a belt of high pressure that has been linked to the drying trend across southern Australia.<sup>23</sup> The increased rainfall in the north-west of Australia may be attributable to localised cooling associated with aerosols drifting south from Asia.<sup>24</sup> However, considerable uncertainty still surrounds the attribution of the causes in the change rainfall patterns.

With global warming, there is likely to be a decrease in rainfall for much of Australia, particularly in the south and east. However, the localised nature of influences on rainfall will produce considerable regional variation, with some areas expected to experience an increase in rainfall.

The projected changes in annual average rainfall for 2030 are minimally different in each of the greenhouse gas stabilisation scenarios, but later in the century the rainfall outcomes are more dependent on the level of mitigation. The changes under the 550 and 450 global mitigation cases follow the same patterns, and the reductions are considerably more subdued compared to the no-mitigation case.<sup>25</sup> Table 2.3 shows the best estimate annual average rainfall outcomes for Australia in a no-mitigation case in 2030, 2070 and 2100.<sup>26</sup>

 Table 2.3: Projected changes to state-wide annual average rainfall, best estimate outcome in a no-mitigation case (percentage change relative to 1990)

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT
2030	-2.5	-3.5	-2.4	-4.2	-4.1	-1.4	-2.5	-2.8
2070	-9.3	-12.9	-8.6	-15.5	-14.9	-5.1	-9.0	-10.3
2100	-13.7	-19.0	-12.7	-22.8	-21.9	-7.6	-13.3	-15.2

Source: CSIRO, 'Regional rainfall projections in Australia to 2100 for three climate cases', data prepared for the Garnaut Climate Change Review, CSIRO, Aspendale, Victoria, 2008.

The best estimate outcomes do not reflect the extent of the uncertainty in potential rainfall outcomes for Australia under climate change. Table 2.4 shows the average annual changes in rainfall in Australia for the 'dry' (10th percentile) and 'wet' (90th percentile) ends of projections in 2030, 2070 and 2100.

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT
Dry outcome (10th percentile) <sup>a</sup>								
2030	-10.1	-8.3	-11.5	-13.1	-12.7	-5.2	-11.4	-8.2
2070	-37.0	-30.3	-42.0	-48.0	-46.5	-19.2	-41.8	-30.1
2100	-54.6	-44.7	-61.8	-70.8	-68.5	-28.3	-61.6	-44.4
Wet outcome (90th percentile) <sup>b</sup>								
2030	4.2	0.9	6.0	4.0	4.2	2.6	6.0	2.0
2070	15.5	3.4	22.0	14.8	15.5	9.5	22.0	7.4
2100	22.8	5.1	32.5	21.9	22.8	14.0	32.4	10.9

# Table 2.4: Projected changes to state-wide average rainfall, dry and wet outcomes in a no-mitigation case (percentage change relative to 1990)

(a) There is a 10 per cent chance that the *decrease* in rainfall will be greater than indicated here.

(b) There is a 10 per cent chance that the *increase* in rainfall will be greater than indicated here.

Source: CSIRO, 'Regional rainfall projections in Australia to 2100 for three climate cases', data prepared for the Garnaut Climate Change review, CSIRO, Aspendale, Victoria, 2008. The methodology for the preparation of these distributions is described in CSIRO & Bureau of Meteorology, *Climate Change in Australia: Technical Report 2007*, CSIRO, Melbourne, 2007.

Changes in annual average rainfall often mask significant seasonal and local patterns. There are likely to be changes in seasonal rainfall patterns across Australia. In winter and spring, rainfall will likely decline in the south-west and south-east; in summer and autumn, rainfall decline will be more limited, and rainfall may even increase in some areas.<sup>27</sup> It is projected that in future there may be longer dry spells broken by heavier rainfall events. The considerable variability Australia experiences in interannual and decadal rainfall may mask or exaggerate changes that are due to high greenhouse gas concentrations.

#### 2.4.3 Sea-level rise

In recent decades, the rate of increase in sea level has been an order of magnitude faster than the average rate of rise over the previous several thousand years, and the rate is increasing. From 1993 to 2003 global sea level rose by 3.1 mm a year, compared to 1.8 mm a year when averaged from 1961 to 2003. Global average sea-level rise during the twentieth century was 1.7 mm a year, which was slightly higher than the 1.2 mm a year rise recorded around Australia for the period.<sup>28</sup>

The IPCC estimated sea-level rise in 2100 to be in the range of 26–59 cm for a scenario similar to the no-mitigation case.<sup>29</sup> This figure does not include the potential for rapid dynamic changes in ice flow from icesheets such as those in Greenland and west Antarctica, which could add up to 20 cm to the upper bound of the sea-level rise estimate for 2100. A key conclusion of the IPCC sea-level rise projections is that larger values above the upper estimate of 79 cm by 2100 cannot be excluded. Recent modelling suggests that a maximum rise of 140 cm is plausible by 2100.<sup>30</sup>

#### 2.4.4 Cyclones and storms

Studies for the Australian region indicate a likely increase in the proportion of tropical cyclones reaching the more intense categories, with a possible decrease in the total number of cyclones. Projections indicate that the regions of cyclone genesis and decay on the east coast could shift 200 km and 300 km southwards, respectively, by 2050.<sup>31</sup>

The limited modelling that has been done indicates a dramatic increase in the risk from very large hail along the south-eastern coastline of Australia, with a decrease in hail risk and severe thunderstorms along the southern coast.<sup>32</sup>

# 2.5 Impacts of climate change in Australia

Australia is highly exposed to the impacts of climate change. Under a no-mitigation emissions scenario, average temperatures across Australia are expected to rise by  $5.1^{\circ}$ C (compared to 1990) by  $2100.^{33}$  Australia's water resources, coastal communities, natural ecosystems, energy security, health, agriculture and tourism will have much increased vulnerability if global temperatures rise by  $3^{\circ}$ C or more.<sup>34</sup>

To place these changes in perspective, a 1°C rise in average temperature will make Melbourne's temperatures resemble those currently experienced in Wagga Wagga, a 4°C rise like that of Moree and a 6°C rise like that just north of Roma in Queensland.

While climate change is usually thought of as involving incremental change, for many locations the main risk from climate change will be an increase in damage from specific events, such as severe storms, heatwaves, intense cyclones, drought and fire.

If global development continues without effective mitigation, the impacts on Australia are likely to be severe. But if greenhouse gas concentrations were stabilised at 450 ppm  $CO_2$ -e, or even 550 ppm  $CO_2$ -e, the impacts on Australia could be much reduced (Table 2.5).

Table 2.5: Differences between	probable unmitigated a	and mitigated futures	at 2100

		Mitigation	Mitigation
Sector	No mitigation	550 ppm CO <sub>2</sub> -e	450 ppm CO <sub>2</sub> -e
Irrigated agriculture in the Murray– Darling Basin	92% decline in irrigated agricultural production in the basin, affecting dairy, fruit, vegetables, grains.	20% decline in irrigated agricultural production in the basin.	6% decline in irrigated agricultural production in the basin.
Natural resource– based tourism (Great Barrier Reef)	Catastrophic destruction of the Great Barrier Reef. Reef no longer dominated by corals.	Disappearance of reef with high impact on reef-based tourism. Three-dimensional structure of the corals largely gone, and system dominated by fleshy seaweed and soft corals.	Mass bleaching of the coral reef twice as common as today.
Natural resource– based tourism (alpine areas)	Snow-based tourism in Australia likely to have disappeared. Alpine flora and fauna highly vulnerable because of retreat of snowline.	Moderate increase in artificial snowmaking.	Moderate increase in artificial snowmaking.
Water supply infrastructure	Up to 34% increase in cost of supplying urban water, due largely to extensive supplementation of urban water systems with alternative water sources.	Up to 5% increase in the cost of supplying urban water. Low- level supplementation with alternative water sources.	Up to 4% increase in the cost of supplying urban water. Low- level supplementation with alternative water sources.
Buildings in coastal settlements	Significant risk to coastal buildings from storm events and sea-level rise, leading to localised coastal and flash flooding and extreme wind damage.	Significantly less storm energy in the climate system. Reduced risk to coastal buildings from storm damage.	Substantially less storm energy in the climate system. Greatly reduced risk to coastal buildings from storm damage.

# Table 2.5: Differences between probable unmitigated and mitigated futures at 2100 (continued)

Temperature- related death	Over 4000 additional heat-related deaths in Queensland each year. A 'bad-end story' (10% chance) would lead to more than 9500 additional heat-related deaths in Queensland each year.	Fewer than 80 additional heat- related deaths in Queensland each year.	Fewer deaths in Queensland than at present because of slight warming leading to decline in cold-related deaths.
Geopolitical stability in the Asia–Pacific region	Sea-level rise beginning to cause major dislocation in coastal megacities of South Asia, South-East Asia and China and displacement of people in islands adjacent to Australia.	Substantially lower sea-level rise. Greatly reduced risk to low-lying populations. Displacement of people in small island countries of South Pacific.	

Note: The assessment of impacts in this table does not build in centrally coordinated adaptation. The median of the probability distribution is used for the scenarios considered.

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

#### 2.5.1 Water security

Water security is already a major challenge in southern parts of the continent, and the costs of meeting this challenge under climate change will be significant. Reductions in rainfall result in proportionately larger declines in the amount of water flowing into rivers and dams ('stream flow'). Generally, a decrease in rainfall can result in a twofold to threefold decrease in stream flow.<sup>35</sup>

In the Murray–Darling Basin, a 10 per cent change in rainfall has already contributed to a 35 per cent reduction in stream flows.<sup>36</sup> This effect is exacerbated by higher temperatures. The reduction in water availability has limited production from cropping and irrigated systems, and is threatening aquatic ecosystems and the viability of towns and farming communities throughout the basin.

Low stream flows have been recorded in the rivers supplying most major urban water storage systems over the past decade.<sup>37</sup> Over that period, stream flows into water storages have been 43 per cent of the long-term average in Canberra, 65 per cent in Melbourne, 62 per cent in Adelaide, 42 per cent in Brisbane and 40 per cent in Sydney.

The earliest significant decline in stream flows of rivers supplying major water storages was observed in Perth (see Figure 2.5). There has been a marked decline since the 1970s, with average annual dam inflows from 1976 to 2000 being about half those from 1911 to 1975. From 2001 to 2007, average inflows were about a quarter of the longer term average. The decline in rainfall in the region, which occurred at approximately the same time, has been partly attributed to human-induced climate change.<sup>38</sup>





Note: Annual totals are from May-April. Source: Water Corporation of Western Australia, Prepared for R Garnaut, *The Garnaut Climate Change Review: Final report*, Cambridge University Press, 2008.

#### 2.5.2 Extreme sea events

The increased magnitude of storm events and sea-level rise under a no-mitigation case is likely to exert significant pressure on coastal infrastructure and natural resources through storm damage and flooding.

The frequency of extreme events can increase many times for even modest changes in mean sea level. For a mid-range (0.5 m) sea-level rise over the twenty-first century, would result in the present one-in a hundred year event becoming an annual or more frequent event by 2100.<sup>39</sup> Larger increases may occur in many places, such as Sydney, Brisbane and Bass Strait.

Shoreline recession can happen at a rate of up to 100 times the amount of sea-level rise, depending on the topography of the coastline. This equates to around 50 m landward erosion for a sea-level rise of 0.5 m.<sup>40</sup> Erosion of this magnitude will have significant impacts on coastal ecosystems, infrastructure, land tenure and public beaches.

#### 2.5.3 Settlements and infrastructure

The Australian trend towards coastal living means that the community's exposure to extreme climatic events, such as severe storms and storm surges, will continue to increase. Around 80 per cent of Australians now live in coastal areas, and that percentage is increasing rapidly. There have been major developments and expansions of settlements in areas known to be subject to a high risk of flooding (see Figure 2.6). Australia wide 711 000 addresses and many billions of dollars worth of assets are at risk from rising sea levels and changes in storm surge.<sup>41</sup>

# Figure 2.6: A doubling of carbon dioxide levels would double the area of Cairns inundated during a 1 in 100 year flood

1-in-100 year storm surge extent

Current 1-in-100 year storm surge extent



Source: B Pittock (ed), *Climate change: An Australian guide to science and potential impacts, prepared for the Australian Greenhouse Office, Canberra, 2003.* 

Climate change will have wide-ranging and significant impacts on the infrastructure critical to the operation of settlements and industry across Australia. Changes in temperature, rainfall and wind may accelerate the degradation of materials, structures and foundations of buildings, thereby reducing their life expectancy and increasing their maintenance costs. Higher temperatures put greater stress on materials such as asphalt and steel. For example, under a 2-3°C increase in temperature, road maintenance costs will rise by roughly 17 per cent.<sup>42</sup> Sustained dry periods can cause increased ground movement, which accelerates the degradation of materials, structures and foundations.

Intense extreme weather events, which are expected to occur more frequently under climate change, will damage or compromise infrastructure, increase the costs of clean-up operations and increase insurance premiums:

- Drought has the potential to disrupt electricity generation capacity and affect the reliability of electricity supplies. Reduced water availability affects coal-fired power stations, which require water for cooling, and hydro-electric stations because of low storage dam levels. Prices in the National Electricity Market in 2007 were highly variable as a result of drought conditions in Australia.
- Drought threatens water security. Infrastructure projects to boost water supply will be costly. For example, to address current water supply problems in south-east Queensland, a \$1.2 billion desalination plant is being constructed as a part of a \$9 billion upgrade to the south-east Queensland water grid.<sup>43</sup>
- Hailstorms lead to extensive property damage and insured losses. The 1999 Sydney hailstorm resulted in \$1.7 billion insured losses and 500 people left homeless.<sup>44</sup>
- Changes in the intensity and geographical distribution of cyclones will place additional infrastructure at risk. A 25 per cent increase in wind gust speed can lead to a dramatic increase in damage costs for buildings, largely because existing building or engineering standards have been exceeded (Figure 2.7).



Figure 2.7: Building claims verses peal gust speed showing disproportionate increase in claims cost from small increases in peak wind gust speed

Source: T Coleman, The impact of climate change on insurance against catastrophes, Insurance Australia Group, 2002.

#### 2.5.4 Health

The adverse health impacts of climate change will be greatest among people on lower incomes, the elderly and the sick. Indigenous people in remote communities are particularly vulnerable as a result of a lack of basic infrastructure, lower economic and social status and existing health problems.

Climate change will lead to an increase in the number of heat-related deaths through an increase in the number of very hot days (above  $35^{\circ}$ C). For a temperature increase of 2–3°C, temperature-related deaths among people over 65 may rise by 89–123 per cent. For an increase of 3–4°C, deaths may rise by 144–200 per cent.<sup>45</sup>

Additional health impacts as a result of climate change include the effects of extreme weather events, changes in the distribution of vector-borne diseases, a greater incidence of foodborne and waterborne diseases (such as food poisoning), and mental health consequences.

#### 2.5.5 Natural resources

Our diverse natural systems, including those underpinning agriculture and fisheries, are highly exposed to long-term climate changes. These systems have limited capacity to adapt to climate change.

Natural areas particularly at risk include the Wet Tropics and Kakadu wetlands, alpine areas, and tropical and deep-sea coral reefs, including the Great Barrier Reef. Examples of impacts include the following:

- A 1°C (compared to 1990) increase in temperature is likely to destroy the entire habitat of the mountain pygmy possum.<sup>46</sup> This temperature increase could also reduce the upland tropical rainforests of the Wet Tropics by up to 50 per cent.<sup>47</sup>
- A 2–3°C temperature rise could lead to the loss of 80 per cent of freshwater wetlands in Kakadu.<sup>48</sup>

- A 2–3°C temperature increase would result in up to 97 per cent of the Great Barrier Reef being bleached every year. A greater than 3°C temperature increase would give rise to catastrophic mortality of coral species.<sup>49</sup>
- A 5°C increase may result in a loss of 90–100 per cent of core habitat for most native vertebrates.<sup>50</sup>

Climate change will threaten agricultural production through changes in water availability, water quality, temperatures and threats from pests and diseases. For example:

- For a 2–3°C temperature increase, pasture growth will slow by roughly 31 per cent and the national livestock carrying capacity will decrease by approximately 40 per cent.<sup>51</sup>
- A 3°C temperature increase may reduce production from the Murray–Darling Basin by roughly 50 per cent.<sup>52</sup>

In 2100, while Australians will be substantially wealthier in goods and services, despite setbacks from climate change, they are likely to be substantially poorer in environmental amenity of various kinds and in the services provided by well functioning ecosystems.

Australia's scientific research base can help human systems adjust to some degree of climate change. Recent research by the Australian Bureau of Agricultural and Research Economics notes that the 'adaptive capacity' of our agricultural industries will enable them to reduce their potential vulnerability to climate change, but at a cost and within limits of the rate and magnitude of climate change.

#### 2.5.6 Indirect impacts

Australia will be affected indirectly by other countries' experiences of climate change.

Modelling conducted for the Garnaut Final Report indicates that climate change will affect Australia's terms of trade (the ratio of Australian export to import prices) much more adversely than any other developed country's. This occurs primarily because our major trading partners in the future, such as China, India, Indonesia and other Asian economies, are expected to be relatively badly affected by climate change.

Climate change threatens geopolitical stability in the Asia–Pacific region. Climate change outcomes, such as the displacement of human settlements by sea–level rise, reduced food production, water scarcity and increased prevalence of diseases, have the potential to destabilise domestic and international political systems in parts of Asia and the south-west Pacific. Australia may be required to intervene in natural, political and humanitarian crises at a large cost.

Australia's level of exposure and sensitivity to the impacts of climate change are high. The extent to which those impacts are realised will depend on the success and timing of global greenhouse gas mitigation, and on national and international adaptation efforts.

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# 3 Shaping a global solution

Australia's economy and environment are likely to be disproportionately affected by climate change. As Australia generates only 1.5 per cent of global greenhouse gas emissions, its actions alone cannot avert the worst consequences of climate change: the only solution to the climate change problem is a global one.

Australia's international climate change objective is to contribute to a comprehensive global solution that will slow and ultimately reduce global greenhouse gas emissions to avert dangerous climate change. Australia has committed to playing its full and fair part in meeting that goal. In determining Australia's role, our domestic and international actions are both important.

As a first step, Australia—along with other developed countries—should take credible and robust steps to cut domestic emissions. Our commitment to reduce emissions by 60 per cent of 2000 levels by 2050, together with an ambitious 2020 target and the introduction of the Carbon Pollution Reduction Scheme, forms the basis of this effort.

Internationally, strong domestic action will support our efforts to help shape an effective post-2012 international climate change framework for reducing emissions under the United Nations Framework Convention on Climate Change (UNFCCC). It will also assist Australia's efforts to secure the participation of all countries, both developed and developing, in global efforts to reduce emissions, including through key bilateral and regional relationships.

This chapter outlines Australia's role in helping to achieve a reduction in global greenhouse gas emissions:

- Section 3.1 explains how Australia's domestic actions contribute to global solutions to climate change.
- Section 3.2 explains how Australia's participation in negotiations under the UNFCCC and the Kyoto Protocol contribute to an effective international agreement to reduce emissions.
- Section 3.3 explains how Australia's bilateral, regional and multilateral partnerships contribute to shaping an effective global solution to climate change.

## 3.1 Australia's domestic contribution to a global outcome

The Government has committed Australia to a medium-term (2020) target to reduce Australia's greenhouse gas emissions by between 5 per cent and 15 per cent below 2000 levels (this is equivalent to a 4-14 per cent reduction from 1990 levels). The target range is one element in a trajectory strategy (see Chapter 4) that aims to contribute constructively to a long-term global solution while supporting Australia's transition to a prosperous, low-carbon future. First, Australia's medium-term target range represents a minimum unconditional commitment to reduce Australia's emissions by 5 per cent below 2000 levels by 2020. It sets Australia on an immediate course to stop the growth of, and then reduce, our emissions by 60 per cent on 2000 levels by 2050. Should countries reach a global deal that includes commitments by all major economies (including key developing countries) to substantially restrain emissions and by all developed countries to take on comparable emissions reductions targets, Australia has committed to reduce emissions by up to 15 per cent below 2000 levels by 2020.

Second, the Government's acceptance of a key finding of the Garnaut Climate Change Review Final Report—that a fair and effective global agreement that delivers deep cuts consistent with stabilising atmospheric concentrations of greenhouse gases around 450 parts per million  $CO_2$  equivalent would be in Australia's interests. However, the Government also accepts the Garnaut Final Report's judgment that securing global agreement to emissions reductions of this magnitude appears unlikely in the near future.<sup>1</sup>

The Government considers the most prospective way forward to setting the world on a path to turn around global emissions is to embark on global action that reduces the risks of dangerous climate change. Immediate domestic action will also support strong outcomes from the international negotiations: transforming Australia's economy into a low carbon economy will build confidence among a broad range of countries and demonstrate that deep cuts in emissions are compatible with continuing economic growth and improved living standards.

By beginning the transformation now, the Government is taking active steps to avoid a counterproductive standoff that risks inaction in the face of dangerous climate change— Australia will encourage other developed countries to specify their mid-term reduction objectives during 2009. Australia recognises it will not be appropriate, or productive, for all countries to adopt identical numeric targets. But targets will need to reflect comparable effort by taking into account the national circumstances of individual countries.

Finally, Australia believes that ambitious global emission reduction goals are in our interest. If a global agreement does emerge over time involving commitments—by developed and developing countries—that are consistent with long-term stabilisation of atmospheric concentrations of 450ppm or lower, Australia would continue to play its full part in achieving ambitious stabilisation levels by establishing appropriate post-2020 emissions reductions targets.

## 3.1.1 The comparability of Australia's efforts

On this basis, the Government considers that, together with Australia's 2050 target, a 2020 target range of 5-15 per cent below 2000 levels is a concrete and credible contribution to a long-term global solution that will protect and advance Australia's long-term interests.

Australia's particular national circumstances—including its rapid population growth, large share of energy- and emission-intensive industries, and heavy reliance on fossil fuels for energy—mean that Australia faces a relatively greater structural adjustment task to move towards a low-emission future than many other developed countries.

Australia's population is projected to grow by around 45 per cent over the 1990-2020 period, so Australia's target range translates to a 34-41 per cent reduction in the per capita emissions of every Australian. In addition, the target range represents a 12-22 percentage point reduction

relative Australia's Kyoto target (which is to limit emissions to 108 per cent of 1990 levels over the 2008-2012 period).

While very few countries have announced specific quantitative commitments to medium term targets, Australia's target range represents a comparable effort to those that have. For example, the European Union (EU) has committed to reducing emissions by 20 per cent in aggregate by 2020 compared with 1990 emissions, or 30 per cent in the context of strong commitments by other developed countries. Like Australia, the EU range represents a 12-22 percentage point reduction relative to the EU's Kyoto target (which is to reduce emissions by 8 per cent below 1990 levels over the 2008-12 period). The population of the EU is projected to be relatively stable over the 1990-2020 period, so its target range translates into a 24 to 34 per cent reduction in per capita emissions for each European.

The comparisons below highlight that Australia and the EU are both making serious and broadly comparable commitments to reduce carbon pollution so as to place the world on the pathway to effective global action. Proposals by United States President-elect Obama and the targets already adopted by the United Kingdom similarly reflect strong commitments to deliver substantial emissions reductions by developed economies.

	J	· · · · · · · · · · · · · · · · · · ·	
Country	2020 targets	2020 per capita reduction	2050 targets
Australia	5-15 per cent below	27-34 per cent below 2000	60 per cent below 2000 levels
	2000 levels	levels	(60 per cent below 1990
	(4-14 per cent below 1990 levels)	(34-41 per cent below 1990 levels)	levels)
European Union	20-30 per cent below	24-34 per cent below 1990	60-80 per cent below 1990
	1990 levels	leveis	levels
United Kingdom	26-32 per cent below 1990 levels	33-39 per cent below 1990 levels	80 per cent below 1990 levels
Proposal			
United States (proposal of President-elect Obama)	Return to 1990 levels	25 per cent below 1990 levels	80 per cent below 1990 levels

Table 3.1: Comparing carbon pollution reduction targets of different countries

Based on UNFCCC emissions data including land use change and forestry; Australia's Low Pollution Future for Australian population projections; UN population projections for other countries.

#### 3.1.2 Contributing to the international response

The Carbon Pollution Reduction Scheme (the Scheme) is designed both to give effect to, and be consistent with, Australia's international obligations.

The Scheme will contribute to the development of a global carbon market by establishing international links via the Kyoto Protocol's flexibility mechanisms. Modelling conducted by the Treasury in *Australia's Low Pollution Future: the Economics of Climate Change Mitigation* found that participation in the global carbon market is important to minimising Australia's costs, as it expands Australian businesses' access to cost-effective mitigation.<sup>2</sup> Linking arrangements will be reviewed in light of ongoing international negotiations, and the evolution of international markets and the Australian scheme. Chapter 11 discusses the implications of international linking for the operation of the Scheme, including for the domestic price of carbon.

By introducing a cap and trade emissions trading system, Australia is joining a growing group of countries that have developed or are developing similar schemes. The most established of these is the 27-member European Union Emissions Trading Scheme, introduced in 2005.

United States President-elect Obama has confirmed that he will introduce a cap-and-trade emissions trading scheme to reduce greenhouse gas emissions by 80 per cent below 1990 levels by 2050. Currently, 23 US states and four Canadian provinces participate in three regional carbon trading schemes—the Western Climate Initiative (WCI), the Regional Greenhouse Gas Initiative (RGGI) and the Midwestern Gas Accord. Three Canadian provinces participate in the WCI and one participates in both the RGGI and the WCI. The New Zealand parliament passed legislation in September 2008 introducing an emissions trading scheme. The National Party led Government (elected in November 2008) has indicated it will review the design of the New Zealand scheme by late 2009, but has reaffirmed its commitment to the introduction of emissions trading.

The design of the Australian scheme as a production-based emissions trading scheme is intended to ensure it is consistent with our international obligations. In developing the UNFCCC, the international community, including Australia, agreed that production, rather than consumption, should be the basis for international greenhouse gas emissions accounting rules.

The Rusal submission (Submission 606) in response to the Green Paper proposed that emissions costs under the Carbon Pollution Reduction Scheme should be imposed on the consumption of products, rather than on producers. This is based on a concern that a production-based model may unfairly target Australia's emissions-intensive, trade exposed industries and risk carbon leakage by creating incentives for these industries to move offshore to countries where no emissions pricing regime exists.

However, the UNFCCC uses a production-based model. Moving away from a production-based model to a consumption-based model would not absolve Australia of its responsibility to monitor and report its production-based emissions, consistent with its UNFCCC reporting obligations. Calling for a new approach globally would not be seen as a constructive contribution to international efforts to reach a global solution to climate change. The Government assesses it as unlikely that the international community will support a move toward a consumption-based approach.

In addition, introducing a price on the emissions contained in goods or services at the point of consumption, rather than production, potentially carries a significant administrative burden. The Government would need to design and implement a methodology that could measure carbon emissions 'embodied' in a range of products and which was flexible enough to be kept up-to-date to account for new products or production methods. As this approach would be applied to imported goods, the methodology would need to account for production methods overseas and would need to be applied in a way that was consistent with international trade rules.

Finally, other countries now developing emissions trading schemes are doing so on a production basis consistent with their international obligations. Australia's adoption of a similar approach in its scheme maximises the opportunity for linking with other emissions trading schemes and contributing to an international carbon market. The Scheme's proposal for international linking and rules proposed for recognition of Kyoto credits within the Scheme outlined in Chapter 11 and Appendix C assume a close complementarity between Australian and international emissions units.

For these reasons, the Scheme will take a production-based approach to liability for carbon pollution, consistent with Australia's long-standing commitments.

## 3.2 Helping to shape a global solution

A global solution will be based on broad international agreement to reduce emissions. Australia is now closely engaged in two tracks of negotiations under the UNFCCC and the Kyoto Protocol, which together constitute the internationally agreed climate change framework. Under the Protocol negotiation track, Australia and other developed countries are negotiating emissions reduction targets for the period after 2012, when the first commitment period expires. Under the UNFCCC negotiation track, Australia is working to ensure that developing countries and the United States (which is not a party to the Kyoto Protocol) agree to comparable 'measurable, reportable and verifiable' actions to reduce greenhouse gas emissions. Both tracks aim to conclude their work at the UNFCCC's Conference of the Parties in Copenhagen in December 2009.

The positions Australia adopts in the negotiations have the capacity to influence the shape of the post-2012 emissions regime. Australia's ratification of the Kyoto Protocol at the United Nations climate change talks in Bali in December 2007 helped to drive forward the launch of a two-year process that aims to culminate in all countries contributing to an effective, equitable and fair post-2012 outcome.

Australia considers it essential that both developed and developing countries can, and do, participate in global efforts to reduce emissions. While taking into account the circumstances of individual countries, Australia is working toward a post-2012 outcome that meets three criteria.

First, the Government believes that the post-2012 outcome must be comprehensive. It must take into account the changing sources and patterns of national contributions to global emissions. Compared to 1992, when the climate change framework was agreed, more countries (the major emitters) need to reduce their emissions if we are to avert dangerous climate change. Almost 80 per cent of the world's greenhouse gas emissions are produced by only 15 countries. The United States, China and the European Union currently rank as the world's three largest greenhouse gas emitters.

To be comprehensive, the post-2012 outcome must tackle growing emissions from developing countries. The Garnaut Final Report reported that, since 2000, emissions from non-OECD countries have grown almost eight times faster than for OECD countries. Without mitigation, developing countries will account for about 90 per cent of emissions growth over the next two decades and beyond.<sup>3</sup> The Treasury modelling found that, even if developed countries (including the United States) reduced their collective emissions to zero by 2050, if other countries followed 'business as usual' emissions pathways, greenhouse gas concentrations would rise to 650 ppm by 2050 and further after that.<sup>4</sup> This would bring high risks of dangerous climate change.

As discussed in Section 3.3.1, the Government considers that, along with our strong domestic measures, our close bilateral and regional ties give Australia unique opportunities to build mitigation and adaptation capacity in some key developing nations and to encourage them to take on greater commitments as part of the post-2012 outcome.

Second, Australia is working to ensure the post-2012 outcome is efficient by generating access by a broad range of countries to low-cost emissions reductions. Modelling conducted by the Treasury in *Australia's Low Pollution Future: the Economics of Climate Change Mitigation* found that broad coverage of emissions sources and sinks reduces the cost of

achieving emission reduction goals.<sup>5</sup> The Government considers that all sectors which contribute significantly to global emissions—such as the forestry and land-use change sectors—should be treated consistently. Including incentives to reduce emissions from deforestation and degradation activities in developing countries will ensure that more countries have opportunities to reduce emissions at the lowest possible cost, because reductions are immediate and the necessary technology is available. Such activities are currently excluded from the Kyoto Protocol. Consistent treatment of key sectors will also build parties' confidence in the developing carbon market that will, in part, finance emissions reduction activities. Australia strongly supported the decision of the parties in Bali in December 2007 to include incentives for activities that reduce emissions from deforestation and degradation in developing countries in the post-2012 framework.

Third, the Government recognises that, to be effective, the post-2012 outcome needs to be fair. It should reflect current relative economic and social conditions and therefore address climate change mitigation and adaptation needs equitably. Since the climate change framework was agreed in 1992, more countries have become able to financially support climate change response measures. They should do so, especially to support the most vulnerable least developed countries and small island developing states. The relative economic circumstances of some of the countries classed as 'developing' have improved to the point where two are now full members of the Organisation for Economic Co-operation and Development (OECD), but continue to be classed as developing countries for the UNFCCC. As well, the per capita GDPs of 40 or so developing countries now exceed those of some of the 'developed' countries listed in Annex I to the UNFCCC.

Against this background, what Australia does domestically (outside the negotiations) matters because there is currently no international agreement on an appropriate mid-term target for developed countries. Australia's 5-15 per cent 2020 target range requires ambitious efforts to reduce emissions by every Australian. Together with credible policy measures, particularly the CPRS, the target range will help to build confidence in the international negotiations. The target range sets Australia immediately on a path to reduce national emissions and signals our willingness to implement greater reductions—up to 15 per cent from 2000 levels—in the event of an appropriate global agreement. This undertaking for the future will also help to encourage broader international engagement by giving other parties incentives to take on robust emission reduction targets.

## 3.3 Australia's complementary international approach

Australia's relationships with key countries and international organisations provide other opportunities to help shape an effective global solution to climate change, especially among regional partners. By supporting efforts to address climate through a suite of bilateral, regional and multilateral partnerships, Australia is aiming to build goodwill and confidence in the international process and encouraging key partners to take actions to restrain their emissions and participate in a global solution.

#### 3.3.1 Bilateral relationships

Australia has longstanding bilateral programs and relationships that can build cooperation and capacity to address immediate and long-term climate change challenges. Through bilateral

assistance programs, Australia can also help developing country partners prepare to take nationally appropriate mitigation and adaptation actions.

Australia has formal bilateral climate change partnerships in place with China, the European Union, Japan, India, Indonesia, New Zealand, Papua New Guinea, South Africa, the United Kingdom and the United States. These have delivered practical projects to build capacity and collaboration on technical matters, such as emissions monitoring and measurement, renewable energy and energy efficiency. These partnerships are supported in some cases by regular high level policy dialogues, such as with Indonesia, Papua New Guinea and, from 2008, China.

Australia's practically focused climate activities build strong working-level platforms to share experience and build capacity. For example Australia's \$200 million International Forest Carbon Initiative aims to support efforts to reduce emissions from deforestation and forest degradation in developing countries. The initiative supports efforts to reduce deforestation through the UNFCCC. It aims to demonstrate that reducing emissions from deforestation and forest degradation can be part of an equitable and effective international agreement on climate change. A central element is the initiative's focus on developing practical demonstration activities with key partners, including Indonesia, Papua New Guinea and East Timor.

#### 3.3.2 Regional collaboration

Australia also contributes to global efforts to reduce emissions by supporting collaborative regional efforts to address climate change. The Government recognises that the Asia–Pacific region faces particular threats from climate change, which is expected to exacerbate existing challenges and lead to significant impacts on environments, sustainable development and, in some cases, countries' potential future survival. Australia is working with its neighbours to improve our understanding of expected climate change and to develop concrete adaptation measures. Through the Government's \$150 million International Climate Change Adaptation Initiative, Australia is helping to address high-priority climate adaptation needs in vulnerable countries in the Asia–Pacific region, particularly among our Pacific island neighbours.

In addition, Australia has pioneered international initiatives that bring together governments, industries and researchers from a wide range of countries to support the development and deployment of low-carbon technology. The Government expects these collaborations to accelerate vital experience- and knowledge-sharing on important technology issues across key industrial sectors. For example, Australia is collaborating with the United States, Japan, the Republic of Korea, Canada, China and India in the Asia–Pacific Partnership on Clean Development and Climate. The partnership is widely recognised as the best existing model for international collaboration on a sectoral level. It can complement economy-wide approaches to reduce emissions and can target sector-specific issues, where technology development and deployment can directly contribute to reducing emissions.

This kind of engagement has the potential to generate regional consensus on key climate change issues and mobilise broader multilateral support for a post-2012 outcome that is sensitive to regional priorities and includes regionally appropriate adaptation and mitigation activities. Australia actively supports the development of regional frameworks and activities through structures such as the Pacific Islands Forum and the Asia–Pacific Economic Cooperation regional forum.

#### 3.3.3 Multilateral cooperation

Australia's engagement in a number of complementary high-level forums provides a further means to build agreement between parties to the United Nations negotiations. The Major Economies Meeting process has sought to build greater consensus on emissions reductions among the world's 15 largest emitters, which together contribute almost 80 per cent of the world's emissions. These countries include key developing and developed emitters, such as China, India, the United States and Japan. Other forums, such as the United Nations General Assembly High Level Segment and G8 Outreach, also provide platforms for the Prime Minister and other ministers to build high-level political momentum and consensus that can move United Nations negotiations forwards.

Australia also supports innovative measures in areas important to the negotiations. For example, as part of a broader commitment to scale up finance for clean development, Australia has committed \$150 million to the World Bank's Climate Investment Funds. In addition to funding transformational shifts to low-carbon and climate-resilient development pathways in developing countries, the funds will finance demonstration adaptation and forestry programs that will generate experience and lessons for the UNFCCC negotiations.

Australia is taking a leading role in the international development and deployment of clean coal technologies. According to the International Energy Agency, Carbon Capture and Storage (CCS) technologies will play a key role in reducing carbon dioxide levels in the atmosphere. <sup>6</sup> The Government has launched a Global CCS Initiative which establishes a Global Institute. The Institute will work to accelerate the research, development and demonstration of CCS technologies and to provide a financial and technical foundation for its commercialisation. The Initiative will complement the work already underway by other institutions to promote CCS technology on a large scale.

# AUSTRALIA'S 2020 TARGET—COMPARISON WITH OTHER REGIONS

The timing and scale of each country's contribution to the global mitigation effort is currently the subject of international negotiations under the UNFCCC and the Kyoto Protocol. While some principles guide international discussions, national interests loom large.

Mitigation will be best enhanced by countries making a comparable effort to others at a similar stage of development, taking into account differing national circumstances. Comparable effort would be represented by the entire portfolio of a country's effort, including but not limited to economy wide emission reduction targets for advanced economies.

A number of factors are relevant to assessing the comparability of effort of developed countries' targets for the post 2012 period. These include per capita effort, reduction relative to targets for the Kyoto commitment period, and economic costs of meeting those targets.

To illustrate Australia's contribution to the global mitigation task, the table below sets out the per capita effort implied by Australia's 2020 target range. The table also shows the 2020 target ranges that would apply if other developed countries and regions make equal reductions in their per capita emissions. This comparison is illustrative only, and does not represent an official negotiating proposal or position of the Government.

If all developed countries (countries listed in Annex I of the UNFCCC) match the per capita reduction of Australia's conditional target of 15 per cent below 2000 levels, this would deliver a more than 30 per cent reduction in collective Annex I emissions.

Australian target for 2020 (% change from 2000)	-5	-15			
	For Australia, this is equivalent to				
% change from 1990	-4	-14			
Per capita reduction (% change, 1990 to 2020)	-34	-41			
Equivalent per capita reductions would translate to absolute 2020 targets of (% change from 1990)					
EU25 (EU 27 excluding Cyprus and Malta)	-31	-38			
United Kingdom	-27	-34			
United States	-10	-19			
Japan	-34	-41			
Canada	-13	-22			
Russia	-41	-47			
Norway	-21	-29			

#### Table 3.2: 2020 targets: comparison of per capita effort

Absolute per capita reduction in emissions implied by these targets (t CO2e per person, change from 1990-2020)				
Australia	10.9	13.2		
EU25	3.8	4.6		
United Kingdom	4.6	5.5		
United States	7.1	8.5		
Japan	3.3	4.0		
Canada	6.3	7.6		
Russia	7.8	9.4		
Norway	2.8	3.4		
2020 per capita level of emissions implied by these targets (t CO2e per person)				
Australia	21.2	18.9		
EU25	7.4	6.6		
United Kingdom	8.9	8		
United States	13.7	12.3		
Japan	6.4	5.7		
Canada	12.2	10.9		
Russia	15.2	13.6		
Norway	5.5	4.9		

#### Table 3.2: 2020 targets: comparison of per capita effort (continued)

Population data from UNFCCC database, http://unfccc.int/di/FlexibleQueries.do (accessed 2 August 2008) and UN Department of Economic and Social Affairs, Population Division, http://esa.un.org/unpp/ (accessed 24 September 2008). Emissions data from Annex I National Inventory Submissions for 2006 including LULUCF (accessed 2 September 2008), UNFCCC Greenhouse Gas Data Interface including LULUCF (accessed 2 August 2008) and inventory using KP accounting including LULUCF (for Australia).

1 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008, pp. 278–279.

2 Australian Government, Australia's Low Pollution Future: The Economics of Climate Change Mitigation, pp. 196-197.

3 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008, p. 64.

4 Government, Australia's Low Pollution Future: The Economics of Climate Change Mitigation, p. 103.

5 Australian Government, Australia's Low Pollution Future: The Economics of Climate Change Mitigation, pp. 140-144.

6 International Energy Agency, World Energy Outlook 2007, OECD/IEA, 2007, p. 216.

# 4 National emissions trajectory and target

This chapter lays out the national emissions targets for 2020 and 2050, and maps the strategy and pathway to achieve those targets. It also discusses the implications for the price of carbon and the costs to the economy of the proposed targets.

The Government has committed to a long-term goal of reducing Australia's greenhouse gas emissions to 60 per cent below 2000 levels by 2050. The national emissions trajectory is the rate and timing of emissions reductions to achieve that target. The 2020 national emissions target range (the 'medium-term target range') and the indicative trajectory have two important functions: signalling to the world the efforts that Australia is making to reduce emissions (including compliance with existing international obligations), and allowing all Australian businesses and households to develop strategies to manage their energy use and efficiently reduce their emissions. This is particularly important to businesses that are major energy users or direct emitters with a liability under the Carbon Pollution Reduction Scheme (the Scheme). In deciding on the shape of the national emissions trajectory, the Government will take into account not only the 2020 and 2050 goals, but also the need to create a smooth path to them.

In the Green Paper, the Government sought feedback on how the trajectory and target range should be defined and communicated. In parallel, the Australian Treasury and others analysed the economic impacts of various national and international emissions reductions scenarios for the Government and for the Garnaut Climate Change Review. The results of these analyses, which were published in *The Garnaut Climate Change Review: Final Report* (September 2008) and *Australia's Low Pollution Future: The economics of climate change mitigation* (October 2008), are relevant to decisions on the level of the target range and the national emissions trajectory.

Having considered submissions in response to the Green Paper, the analyses of economic impacts, and responses to this analysis, the Government has decided on a medium-term target range to reduce emissions by between 5 and 15 percent below 2000 levels by 2020, and an indicative national trajectory to give immediate guidance on the likely levels of emissions reductions in the first three years of the Scheme. These commitments are complemented by an unambiguous statement that Australia's national interest will be best served by a comprehensive global agreement to stabilise atmospheric concentrations of greenhouse gases at around 450 parts per million of carbon dioxide equivalent (ppm CO<sub>2</sub>-e) or lower, and that should such an agreement emerge, Australia would establish post-2020 targets to ensure that it makes its full contribution to more ambitious global action.

This chapter does not discuss Scheme caps and related issues. That information is in Chapter 10.

- Section 4.1 of this chapter discusses factors considered in setting the target range and indicative trajectory.
- Section 4.2 discusses the trajectory strategy and the medium-term (2020) target range for emissions reduction, including the results of modelling by the Treasury and the Garnaut Final Report.
- Section 4.3 discusses the nature of the indicative national trajectory.
- Section 4.4 discusses the expected carbon price implied by the medium-term target range and the indicative national trajectory.

## 4.1 Issues in setting targets and trajectories

In the Green Paper, the Government set out criteria against which the Scheme design would be assessed. These criteria are also useful tools in setting targets and trajectories. In setting the target range and the trajectory, the Government has considered the following relevant criteria:

- *Environmental integrity*. The target range and trajectory together should catalyse a policy response that delivers genuine reductions in global emissions and drives the transformation of the Australian economy to a low-carbon future. The environmental integrity of a target is described by the actual emissions reductions it achieves. A very ambitious target or a steep trajectory holds out the prospect of greater environmental benefits, but if they are too ambitious or too steep there is a risk that society will decide that sacrifices to reach the target are not worth making. An overambitious target that is not achieved has less environmental integrity (and effectiveness) than a realistic target that can be achieved and built upon in future years.
- *Economic efficiency*. Achieving emissions reductions at the lowest long-term cost maximises our ability to respond to climate change. It is important to achieve our environmental goals as efficiently as possible and get the maximum value out of our mitigation efforts. To do otherwise would waste resources and reduce our ability to respond in the future. See Box 4.1 for a discussion of economic efficiency in the context of emissions reduction policy.
- *Flexibility*. There are inherent uncertainties in climate change science and in the global social and political response to climate change. Policy must be able to respond to changing circumstances in a way that is timely and appropriate. Therefore, policy settings need to provide both medium-term flexibility and clarity for decision making in the short term.
- *International objectives*. Targets and trajectories should support Australia's international negotiating objectives and be consistent with international obligations, including trade and climate change treaties. The target range is a central means by which Australia signals the efforts we are prepared to make as part of global endeavours to reduce the impacts of climate change.

- *Accountability and transparency*. Business will make investment decisions and householders will make lifestyle choices based on the target range and the trajectory. Decisions on targets and trajectories should be well based and subject to public scrutiny.
- *Fairness*. As discussed in Chapter 1, while the case for action on climate change is clear, there will be costs. The costs should be spread as equitably as possible across the economy, and no-one should shoulder more than their fair share of them.

Many who made submissions to the Green Paper raised these criteria in relation to the target range:

Credible and achievable emissions reduction trajectories and caps should be set through a rigorous and transparent process underpinned by modeling and research which assesses the economic, social and environmental impacts. Trajectories and caps should be technically and environmentally feasible and provide the basis for a smooth, long-term transition to a low-emissions economy recognising the unique features of the Australian economy, international progress in emissions reduction and our contribution to global emissions. (ExxonMobil, Submission 254, p. 4)

To be a credible player in the global effort to avoid catastrophic climate change Australia needs to reduce carbon pollution by at least 30 per cent by 2020 (from 1990 levels) and should increase our commitment to 40 per cent if other developed countries do the same. (Australian Conservation Foundation, Submission 809, p. 3)

A well designed [emissions trading system] must be efficient, effective and equitable in the long term and, importantly, must ensure a smooth and orderly economic transition in the short-medium term. Failure to ensure an orderly transition could have widespread and potentially long lasting adverse economic impacts. (Energy Supply Association of Australia, National Generators Forum, Energy Retailers Association of Australia and Australian Pipeline Industry Association, Submission 715, p. 1)

#### Box 4.1: How economic efficiency applies to reducing emissions

In general terms, economic efficiency is realised when nothing more can be achieved using the resources available. A system can be considered economically efficient if it produces goods or services at the lowest possible per-unit cost, or if no one can be made better off without making someone else worse off, or if output cannot be increased unless inputs are also increased.

Economic efficiency will be enhanced when policy settings encourage flexibility and focus efforts to reduce emissions on least-cost options. This is a central reason for adopting market-based approaches, such as emissions trading.

The key efficiency issues in setting the trajectory and the medium-term target range are achieving efficient risk management and managing the pace of economic adjustment. Where risk and uncertainty are significant, as is the case in responding to climate change, efficiency will be best achieved when risks are assigned to those who are best placed to judge, act on and manage those risks.

Governments and the private sector have different strengths in judging and managing the risks or likelihoods of different climate change impacts. Neither has a clear advantage in assessing likely future global emissions reductions. National governments control whether they sign future international agreements and take on specific obligations. Businesses have less control over emissions targets or carbon prices, but have many options for managing uncertainty (ranging from reducing emissions and energy use in their operations to using financial instruments) and can choose the best options to fit their circumstances.

Given these different strengths, and the inherent uncertainties associated with climate change, it would not be efficient to allocate all risk either to government or to the private sector. Shifting the full burden of risk management to government would weaken commercial incentives to reduce emissions, would reduce economy-wide efficiency, and could reduce the environmental integrity of the Carbon Pollution Reduction Scheme.

Government should be clear about its policy intent and the processes involved in determining emissions reductions over time. It is appropriate for the Australian Government to put boundaries around the scope and pace of economic adjustment over the next 10 to 15 years. The Government will also provide support for those disproportionately affected by the introduction of the Scheme, through such means as the Climate Change Action Fund, the tax and payments system, and other complementary measures.

#### 4.1.1 Current and projected emissions

An additional important factor in setting the medium-term target range and the trajectory is the projected level of emissions in the absence of any policy action. Australia's greenhouse gas emissions are published each year in the National Greenhouse Gas Inventory (NGGI); and in February 2008, the Department of Climate Change also published *Tracking to the Kyoto target 2007: Australia's greenhouse emissions trends 1990 to 2008–2012 and 2020.* 

Projections in *Tracking to the Kyoto target* used a combination of 'top-down' and 'bottom-up' models. For key sectors, such as stationary energy, the projections used a

multiple-model approach, in which the sectoral projection is taken as the average of three independent projections made using different sector models. The overall projection for Australia was produced from the sum of the individual sectoral projections. Figure 4.1 shows an estimate of Australia's future emissions under current policy settings.



Figure 4.1: 'Business as usual' and 'with measures' emissions estimates

Source: Department of Climate Change, Tracking to the Kyoto target 2007: Australia's greenhouse emissions trends 1990 to 2008–2012 and 2020, 2008'.

Table 4.1 shows Australia's National Greenhouse Gas Inventory for 2005–06 and preliminary estimates of the likely inventory in 2006–07 and 2007–08.

Table 4.2 shows Australia's likely emissions position in 2007–08, based on the estimated national inventory.

1 able 4.1. National Greenhouse Gas inventory, 2005–00 (actual) to 2007–00 (estimate
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National greenhouse gas inventory (megatonnes)	2005–06ª	2006–07 <sup>b</sup>	<b>2007–08</b> <sup>b</sup>
Energy—combustion of fuels	366	372	377
Energy—fugitive emissions	34	35	36
Industrial processes	28	30	31
Waste	17	17	17
Agriculture	90	86	88
National inventory total <sup>c</sup>	536	540	550

(a) Department of Climate Change, National Greenhouse Gas Inventory 2006, Commonwealth of Australia, 2008.

(b) Preliminary estimates.

(c) National Inventory excluding land use, land use change and forestry. Net emissions from the land use, land use change and forestry sector were estimated to be 40 Mt in 2006.

Table 4.2: Likel	y net emissions	position, 2007-08
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Item (megatonnes)		<b>2007–08</b> <sup>a</sup>
National inventory total <sup>b</sup>	(1)	550
National assigned amount under the Kyoto Protocol:		
Assigned amount per year <sup>c</sup>	(2)	592
Projected adjustments to assigned amount:		
Article 3.3: Deforestation, afforestation and reafforestation <sup>d</sup>		-23
Articles 6, 12,17: Flexibility mechanisms		n/a
Total projected adjustments	(3)	-23
Net assigned amount	(4) = (2) + (3)	569
Net balance	= (4) - (1)	+19

(a) Preliminary estimates.

(b) National Inventory excluding land use, land use change and forestry. Net emissions from the land use, land use change and forestry sector were estimated to be 40 Mt in 2006.

(c) Australia's Initial Report under the Kyoto Protocol, revised submission 2008.

(d) As projected for the average of each year in the first commitment period in 'Tracking to Kyoto 2008'—this projection is subject to significant uncertainty.

Since 1995 emissions have been increasing at a trend rate of around 1 per cent a year<sup>1</sup>, although there is significant annual variability — emissions can vary by up to 5 per cent each year.<sup>2</sup> Many factors drive this variability, including changes in economic activity, population and commodity prices; the characteristics of coal, oil and gas being extracted; and natural climate variability. For example, emissions change during drought mainly because there are fewer cattle and sheep, but also because there is less water available for hydro-electricity generators, which increases emissions from fossil-fuelled stationary energy generation. On the other hand, if water shortages result in less water available for cooling in some coal-fired power plants, this can lower emissions. Variation in emissions from land-use change is also affected by the area of land cleared each year and the prevailing weather conditions (for example, whether it was a drought year or a wet year).

Having ratified the Kyoto Protocol, Australia is committed to restraining its national emissions to an average of 108 per cent of 1990 levels across the first commitment period (2008 to 2012). In the event of a post-2012 international agreement, the specification of Australia's 2020 target range and the trajectory must take into account, both likely emissions variability and our international obligations, including any association with a post 2020 international agreement.

The medium-term target range will be achieved through a variety of measures, but primarily by the Carbon Pollution Reduction Scheme, which will set caps on emissions from covered sources in the economy. Scheme caps will be set in line with the trajectory, but there will always be a gap between the trajectory and the Scheme caps. Not all sources of emissions will be covered by the Scheme in its early years, and not all entities in covered emissions sources will emit more than the threshold amount for participation, so national emissions will generally be larger than the Scheme cap in any given year.
## 4.1.2 Parameters used in describing the trajectory and target range

Both the trajectory and the target range can be described using three related parameters:

- *Tonnes of carbon dioxide equivalent (t CO<sub>2</sub>-e)*. This is the internationally accepted measure for greenhouse gas emissions. It describes, for a given mixture and amount of greenhouse gases, the amount of CO<sub>2</sub> that would have the same global warming potential when measured over a specified timescale (generally 100 years). Box 4.2 has a full explanation of which greenhouse gases are covered.
- As a percentage relative to a previous year. Australia's Kyoto target, for example, is expressed as 108 per cent of 1990 levels, while the Government's long-term target is expressed as a 60 per cent reduction below 2000 levels. Because Australia's emissions in 1990 were almost the same as in 2000 (547.7 million tonnes<sup>3</sup> and 552.8 million tonnes<sup>4</sup> respectively), percentage reductions below 1990 and 2000 levels for Australian emissions are reasonably similar.
- As a per capita percentage relative to a previous year. This can sometimes provide a more meaningful comparison of emissions reductions relative to other countries, because it incorporates not only the absolute economy-wide change in emissions over a timeframe, but also the change in population. Per capita reduction targets below 1990 and 2000 levels are quite different, despite similar absolute levels of emissions in those two years, because of different populations in those years. Australia's per capita emissions were 32.1 tonnes per person in 1990 and 28.9 tonnes per person in 2000.<sup>5</sup>

Goals for greenhouse gas emissions reductions are sometimes described in terms of a desired global outcome; for example, 'stabilising emissions at 500 ppm  $CO_2$ -e', 'limiting global temperature rise to 2 degrees Celsius' or 'avoiding dangerous climate change'. Such goals are only meaningful at a global level. The global atmospheric concentration of greenhouse gases and resulting temperatures will only be stabilised by global efforts to reduce emissions, which are the sum of national efforts. In practice, there is no direct link between one country's emissions reduction target in 2020 and global stabilisation at a certain long-run concentration, because stabilisation results from the aggregate of all countries' efforts over time.

## Box 4.2: Emissions covered by the Kyoto Protocol

The Kyoto Protocol sets targets for reductions in national emissions of greenhouse gases. Australia's national emissions are a net amount: the amount of domestic emissions less any offsets purchased or sold outside our borders consistent with the Kyoto Protocol rules. Both the indicative national trajectory and the 2020 or medium-term target are expressed in terms of national emissions.

The greenhouse gases covered by the Kyoto Protocol are carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons, and perfluorocarbons. For accounting purposes, all six gases are measured in tonnes of carbon dioxide equivalent (t  $CO_2$ -e). The sectors for which emissions are reported are energy, industrial processes, agriculture, waste, land-use change and forestry.

The first commitment period of the Kyoto Protocol is 2008 to 2012. For Australia's emissions monitoring purposes, this is taken as the financial years 2007-08 to 2011-12.

# 4.2 Determining the medium-term target range

The limit placed on national emissions will be a key part of Australia's response to climate change. The size of this limit and the timeframe over which it is applied, along with the level and nature of global action to reduce emissions, will have an important influence on the economic cost of climate change mitigation. The medium-term target range is a milestone on the way to the Government's stated long-term target of a 60 per cent reduction in greenhouse gas emissions by 2050.

The medium-term target range has a dual role: to create domestic momentum towards the long-term target, and to assist Australia in negotiating a global agreement by signalling the efforts that Australia is prepared to make in reducing emissions. The medium-term target range must balance the cost to the Australian economy with the benefits of contributing to global momentum in responding to the risks of climate change.

## **Green Paper position**

At the end of 2008, in the context of the White Paper, the Government would announce a medium-term national target range for 2020 that provides upper and lower bounds to give investors and market participants information on directions and retains sufficient flexibility for the Government.

# 4.2.1 Modelling the cost of mitigation

To inform the choice of a 2020 target range, the Government considered economic modelling of various possible scenarios. The Australian Treasury modelled four scenarios, both for the Government (referred to as the 'CPRS scenarios') and for the Garnaut Climate Change Review (referred to as the Garnaut scenarios). Results of the scenario modelled by Treasury were published as ALPF. The Garnaut Climate Change Review also carried out separate modelling exercises of two additional scenarios, which were also published in the Garnaut Final Report.

Both the Garnaut Final Report and *Australia's Low Pollution Future* presented results from a combination of three top-down, computable general equilibrium (CGE) models: the Global Trade and Environment Model (GTEM), the G-Cubed model, and the Monash Multi Regional Forecasting (MMRF) model. GTEM and G-Cubed are models of the global economy, whereas MMRF is a model of the Australian economy with state and territory level detail. The CGE models were complemented by a series of bottom-up sector-specific models for electricity generation, transport, land use change and forestry.<sup>6</sup> The analysis covered four key dimensions<sup>7</sup>:

- *Global*: rates and patterns of economic growth, technology development and emissions
- *National*: overall performance of the macro-economy and patterns of growth across industries, sectors, states and territories
- *Sectoral*: likely technological development and timing and scale of opportunities to reduce energy use and emissions
- Household: impacts on income, consumption and prices.

The Garnaut Climate Change Review worked closely with the Treasury to define the reference case (that is, 'business as usual' with no new policies to reduce emissions and assuming no impacts from climate change). <sup>8</sup> In the scenarios developed by the review, GTEM outcomes were used as an input into the MMRF model, which was augmented by bottom-up sectoral models. GTEM was extended using GIAM (Global Integrated Assessment Model) to model the interaction between the climate system and the economy in estimating global mitigation and climate change damages.

Results from the Treasury modelling present a range of measures when reporting high level results. The report focuses on gross national product (GNP) as the measure of economic welfare. GNP includes international trade and capital flows and, in a world with internationally linked emissions trading, captures the impact of importing and exporting emissions units.

## Different assumptions, different results

Care is needed when comparing modelling outcomes from different exercises. The extent to which modelling results can be compared depends on how similar the models' methodologies and underlying assumptions are. It is also important to emphasise that, while economic analysis of emissions scenarios published during 2008 contains information about the likely increase in emissions, it is not an emissions projection tool.

It is also important to bear in mind the different purposes and emphases of different scenarios. The modelling results for the scenarios presented in the Garnaut Final Report and by the Treasury in *Australia's Low Pollution Future* use consistent models but contain varying policy assumptions. The major differences in assumptions include the following:

- *Modelled avoided costs of climate change*. The Garnaut Final Report identified four types of climate change induced costs<sup>9</sup>:
  - Type 1: economic costs of 'most likely' climate impacts that are able to be quantified
  - Type 2: economic costs that cannot be estimated with confidence
  - Type 3: cost of the risks that climate impacts are more severe than median projections
  - Type 4: costs that are felt outside markets, such as loss of environmental systems and amenity, and international humanitarian impacts that do not affect Australian markets.

The Garnaut Review incorporated types 1 and 2 into its analysis. The review also included in its analysis the benefits to the economy of avoiding some of these costs.<sup>10</sup>

The Treasury work did not include the impacts of climate change or the benefits of mitigation.<sup>11</sup>

- *Modelled costs of emissions reductions.* The Garnaut Final Report and the Treasury both modelled the costs of emission reductions in the same way.<sup>12</sup>
- *Coverage*. The Garnaut Final Report scenarios assume that all sectors of the economy are covered by the mitigation policy from 2013<sup>13</sup>, whereas the CPRS scenarios assume

coverage based on the Green Paper (for example, the CPRS scenarios assume that the agriculture sector is excluded until 2015).<sup>14</sup>

- International action
  - The CPRS scenarios employ a multi-stage approach to international emissions trading.<sup>15</sup> Countries are divided into different groups and assumed to take on targets that gradually diverge from their emissions under the referent ('no action" scenario. From 2010, countries listed in Annex B to the Kyoto Protocol take equivalent mitigation effort to Australia from 2010. China and higher income developing countries take on targets from 2015 India and middle income developing countries take on targets from 2020. Lower income countries take on targets from 2025. International trade in permits is unconstrained from 2020 onwards.
  - Emissions allocations within each group, including advanced countries, are a uniform reduction from each country's reference case emissions. This results in total emissions allocations for each group of nations being between 50 per cent and 80 per cent below reference scenario levels by 2050. This allows emissions allocations for developing countries to continue to grow relative to current levels (albeit more slowly than in the reference scenario), before peaking and then declining in absolute terms. For example, China's allocation peaks around 2030, and India's allocation peaks around 2040, both at levels significantly above current emissions.
  - In contrast, the Garnaut Final Report scenarios assume that Australia will take on its proportionate share of global mitigation on a per capita basis.<sup>16</sup> The model allows for a transition period to enable the current unequal distribution of emissions across countries to 'contract and converge' to equal per capita entitlements in 2050. Global mitigation efforts commence in 2013 with unlimited trading in permits between countries. This represents a stylised optimal post-2012 framework.
- *Emissions-intensive trade-exposed industries*. The CPRS scenarios shield emissionsintensive trade-exposed sectors until 2020<sup>17</sup>, after which assistance is phased out, consistent with the preferred position expressed in the Green Paper. The Garnaut Review scenarios do not include any shielding of those sectors, as concerted world action to reduce emissions results in an emissions price emerging in all countries at the same time.
- *Fuel excise*. The CPRS scenarios offset the impact of an emissions price on transport fuels through fuel excise changes.<sup>18</sup> In contrast, the Garnaut Final Report scenarios assume that the emissions price impact on transport is passed through to consumers.
- *Renewable Energy Target*. The CPRS scenarios include the Renewable Energy Target so that 20 per cent of Australia's electricity comes from renewable sources by 2020.<sup>19</sup> The Garnaut Final Report scenarios assume that Australia does not have a Renewable Energy Target once emissions trading commences.<sup>20</sup>
- *Long-term emissions reduction target*. An emissions reduction scenario needs to specify both a start point and an end point in order to describe the shape of the path between the two points. The CPRS scenarios are consistent with the Government's stated 2050 target of a 60 per cent reduction below 2000 levels.<sup>21</sup> The Garnaut Final Report scenarios involve Australian emissions reductions to 80 per cent and 90 per cent below 2000 levels by

 $2050.^{22}$  It is important to note that these 2050 targets are assumptions; they are not results of projections by the models.

## Emissions reduction scenarios used for analysis

The consequences of different national trajectories and international arrangements were explored through six stylised scenarios.

In the *Garnaut Waiting Game* scenario<sup>23</sup>, emissions trading is implemented in 2010 without any clarity about the long-term coverage or ambitions of the likely international agreement to reduce greenhouse gas emissions. This scenario does not include a 2020 target, and the carbon price is fixed. (The use of fixed carbon prices in an emissions trading scheme is discussed further in Chapter 15.) The aim would be to 'keep hopes alive of an international agreement at reasonable cost, until all opportunities had been exhausted'.<sup>24</sup> The Garnaut Final Report suggests that this outcome is unlikely, given commitments by the governments of developed countries.

In the *Garnaut Copenhagen Compromise* scenario<sup>25</sup>, emissions trading commences with a partial (rather than a comprehensive) international agreement to reduce greenhouse gas emissions, and the carbon price is fixed between 2010 and 2013. Under this scenario, the Garnaut Final Report suggests that Australia would reduce greenhouse gas emissions by 5 per cent below 2000 levels by 2020. Like the Waiting Game scenario, the Copenhagen Compromise is assumed to be a transitional scenario that will be superseded by a more ambitious global agreement.

In the *Garnaut 550 ppm* scenario<sup>26</sup>, emissions trading begins with a comprehensive global emissions reduction agreement in place, centred on the long-term stabilisation of global atmospheric greenhouse gases at 550 ppm  $CO_2$ -e. All countries take on obligations from 2013, with the per capita emissions allowances of fast-growing developing countries rising until they meet the per capita levels of the European Union and Japan, and then converging on equal global allocations by 2050. The Garnaut Final Report suggests that, under this scenario, Australia would reduce greenhouse gas emissions by 10 per cent below 2000 levels by 2020.

The *Garnaut 450 ppm* scenario<sup>27</sup> is similar to the Garnaut 550 ppm scenario, but the assumed global agreement is centred on long-term stabilisation at 450 ppm  $CO_2$ -e. The Garnaut Final Report suggests that, under this scenario, Australia would reduce greenhouse gas emissions by 25 per cent below 2000 levels by 2020. Mitigation costs associated with the Garnaut 550 ppm and Garnaut 450 ppm scenarios were modelled by the Treasury, and the results were also published in *Australia's low pollution future*.

Australia's low pollution future presented a further two scenarios: the CPRS - 5 scenario<sup>28</sup> and the CPRS - 15 scenario.<sup>29</sup> These include the impact of the Scheme as presented in the Green Paper, and achieve reductions by 2020 of 5 per cent and 15 per cent, respectively, below 2000 levels. Both assume a staged approach to international action, with developing countries joining the system over the period from 2015 to 2025 as described above. Australia's low pollution future locates CPRS -5 in a global scenario that would stabilise global atmospheric greenhouse gases at around 550 ppm CO<sub>2</sub>-e by the end of the century; and CPRS -15 in a global scenario with stabilisation at around 510 ppm CO<sub>2</sub>-e.

## Key results from economic modelling

*Australia's low pollution future* found that all the emissions reduction scenarios modelled involved only slightly slower economic growth than the reference case. <sup>30</sup> Consistent with other Australian and international modelling, annual GNP (gross national product) and GDP (gross domestic product) growth is around 0.1 per cent lower over the period to 2050 than it would be without policy action. This results in per capita GNP (measured in 2005 dollars) rising from \$50,400 in 2008 to between \$54,700 and \$55,200 in 2020 across the four scenarios, rather than \$55,900 in 2020 in the reference case. GNP is 1.3 per cent to 1.7 per cent below the reference case in 2020 in the CPRS scenarios, and up to 2.0 per cent below the reference case in the Garnaut Final Report scenarios.

These impacts are equivalent to about four months of economic growth, implying that the level of economic activity achieved in January 2020 in the reference case would be achieved in April 2020 in the CPRS scenarios.

Table 4.3 summarises results from *Australia's low pollution future* and the Garnaut Final Report.

	Reference case <sup>b</sup>	Garnaut Waiting Game <sup>a</sup>	Garnaut Copenhagen Compromise <sup>a</sup>	Garnaut 550 ppm <sup>ь</sup>	Garnaut 450 ppm <sup>b</sup>	CPRS – 5 <sup>b</sup>	CPRS – 15 <sup>⁵</sup>
2020 target (per cent below 2000 levels)	No target (40 per cent above 2000 levels)	No target	-5	-10	-25	-5	-15
2020 target in per capita terms (per cent below 2000 levels)	No target (8 per cent above 2000 levels)	No target	-25	-31	-44	-27	-34
2020 GNP per capita (2005 dollars)	\$55,900	Not reported	Not reported	\$55,000	\$54,700	\$55,200	\$54,900
GNP per capita increase 2010–2020 (per cent)	+9.6	Not reported	Not reported	+8.7	+8.3	+7.8	+7.3
2020 GNP per capita, percentage from reference	Not applicable	-0.9	-1.4	-1.5	-2.0	-1.3	-1.7
2020 carbon price (in 2005 dollars)	Not applicable	\$29.60	\$52.60	\$35	\$60	\$35	\$50
Assumed 2050 target (per cent below 2000 levels)	Not applicable	No target	60	80	90	60	60
Potential long-term global CO <sub>2</sub> e stabilisation level (ppm CO <sub>2</sub> -e)	No stabilisation	Not reported	Not reported	550	450	550	510

#### Table 4.3: Summary of results of modelled scenarios

(a) The Garnaut Climate Change Review: Final report, 2008.

(b) Australia's low pollution future, 2008.

(c) 1565ppm in 2100 and rising.

This analysis highlights that impacts on the Australian economy result from a combination of national and international factors, including Australia's emissions trajectory and policy arrangements, the level of global emissions reductions, and the scope and efficiency of global carbon trading arrangements.

The major finding of the Garnaut Final Report was that the long-term economic costs of inaction are greater than the costs of action. <sup>31</sup> That judgment 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. Importantly, however, the value of economic activity at the end of the century is higher with emissions reductions than without.

The modelling presented in *Australia's low pollution future* did not assess the benefits of reducing emissions. That report's major conclusions included the following:<sup>32</sup>

- the economic cost of reducing Australia's emissions will be small, although costs to sectors and regions will vary
- even ambitious emissions reduction goals will have limited impacts on global and national economic growth if they are achieved using broad-based, market-oriented policies
- early global action is less expensive than later action, and there are advantages for Australia in acting early if emissions pricing expands gradually across the world. Economies that defer action will face higher long-term costs as global investment is redirected to early movers
- a market-based approach allows robust economic growth into the future even as emissions fall, and many of Australia's industries will maintain or improve their competitiveness under an international agreement to combat climate change.

The Treasury's analysis suggests that participating in more ambitious global action would involve higher total costs but the differences across scenarios are relatively small, the total economic costs of achieving different targets are quite similar. Coupled with the findings of the Garnaut Final Report, this suggests that international willingness to reduce emissions will be a key factor in deciding the most appropriate emissions trajectory and medium-term target range for Australia.

# 4.2.2 Minimising costs to the Australian economy

A significant percentage of Australia's greenhouse gas emissions have their source in long-lived assets such as power stations, building energy use and vehicles. Reducing emissions across the economy will affect both the use of existing assets and decisions to invest in new ones. The pace of emissions reductions will affect the utility that the economy derives from existing assets. If emissions are reduced very quickly, there is a risk that the assets will be stranded, imposing an additional cost on the economy. Conversely, not reducing emissions quickly enough imposes a cost on other sectors. For new assets, investors need reasonable certainty about their liability for greenhouse gas emissions before they decide on investments. While investments will not be made without sufficient certainty, the provision of 'false certainty' risks stranding assets in later years.

The modelled economic impacts in Section 4.2.1 assume that the financial risk of carbon price uncertainty is efficiently allocated; that is, appropriate levels of risk are accepted by those who are best equipped to manage them. At the present time, carbon price uncertainty is significant, partly because there is little experience in the economy in pricing carbon, and partly because of uncertainty about the international pace and scale of emissions reductions in the next international commitment period.

Business' exposure to carbon price uncertainty will diminish over time, as businesses participate in emissions trading and 'learn by doing'. Businesses for which carbon and energy

prices are significant will draw on information from a wide range of sources in Australia and overseas to make their own judgments about the evolution of key climate policy settings, and will position themselves accordingly. Providing a clear signal of the Government's policy intent through the medium-term target range and the trajectory allows businesses to form judgments about medium- and long-term carbon prices and facilitates appropriate risk management. In addition, many Scheme design features, such as the price cap (Chapter 8), banking and borrowing of permits (Chapter 8) and international linking (Chapter 11), will help to minimise carbon price uncertainty at the start of the Scheme.

# 4.2.3 International signals

Climate change is a global problem that requires a global response. Although international support for action on climate change has strengthened dramatically over the past decade, the size, distribution and coverage of emissions reductions under the next international agreement are highly uncertain. Australian businesses have already endured a long period of uncertainty about future carbon prices, delaying investment.

Australia is actively engaged in negotiations for an international agreement to reduce global carbon emissions, to take effect after the first commitment period under the Kyoto Protocol expires in 2012. The national emissions target will form an important part of those negotiations. National emissions targets signal two things: the broad level of global action that a nation considers desirable and achievable; and what that nation considers would be a reasonable contribution to the global effort.

Australia is committed to playing its full and fair part. Some have suggested that Australia should 'free ride' by asking more of other countries than we are prepared to do as part of a global response. That would be widely interpreted as a sign that we do not consider that cutting emissions would provide net benefits to all countries, and that we do not support ambitious global emissions reduction. Australia cannot afford to send such a signal.

A key finding of the Garnaut Final Report was that a fair and effective global agreement delivering deep cuts in emissions consistent with stabilising atmospheric concentrations of greenhouse gases at 450 ppm CO<sub>2</sub>-e or below would be in Australia's interests.<sup>33</sup> The logic and findings of the report also strongly suggest that global action towards this goal would also provide substantial global benefits. However, the report also found it unlikely that global commitment to an agreement centred on the 450 ppm goal would be achieved in the current round of negotiations, and that the most prospective pathway to the goal is to embark on global action that reduces the risks of dangerous climate change and builds confidence that deep cuts in emissions are compatible with continuing economic growth and improved living standards.<sup>34</sup>

The Government has no illusions about the size and complexity of the climate change challenges we face as a nation. Australia's highly variable climate and recent years of drought have made it easier for us to understand the costs of climate change, which are expected to be more severe for us than for most other developed nations. We are also beginning to understand that deep reductions in emissions are consistent with rising living standards and strong economic growth. But that understanding is not yet widespread among other nations, many of which are not yet ready to commit to the level of action required to achieve global stabilisation of atmospheric greenhouse gases at 450 ppm  $CO_2$ -e or lower.

We should not delay Australian action while we wait for a perfect international outcome. Waiting for a firm international agreement before announcing a medium-term target would risk making economic adjustment to future emissions targets and carbon prices more difficult. Treasury modelling indicates that economies that act earlier face lower long-term costs<sup>35</sup> around 15 per cent lower than with uniform international action. Australia can and should help to build the momentum required for a comprehensive global agreement by demonstrating, through the successful operation of the Scheme and other measures, that it is possible to integrate a carbon price into the economy and reduce emissions with only modest economic impacts. Importantly, the Kyoto Protocol acknowledges that, while all countries have a duty to reduce emissions, the distribution of effort should take account of national circumstances.

Some have argued that, because Australia's emissions are only a small part of the global total, we have little influence on the outcomes of any international agreement to stabilise global emissions. That position misunderstands the dynamics of global action. Australia is one of the top 15 nations in total national emissions, and among the top three in emissions per person (see Table 1.3 in Chapter 1). Together, these 15 nations produce 80 per cent of global emissions. This group, which includes many of the major developed and developing nations, will be centrally involved in deciding the shape and pace of global action. The international community has agreed that developed countries will act first to reduce emissions. This means that all developed countries have the capacity to block or slow progress towards global agreement, but also that developed countries will be able to catalyse greater global action. Showing that action to reduce emissions is consistent with rising living standards will be an important part of achieving an agreement by less developed countries to restrain their emissions in the future.

#### **Policy position 4.1**

The Government accepts the key findings of the Garnaut Final Report that:

- a fair and effective global agreement delivering deep cuts in emissions consistent with stabilising concentrations of greenhouse gases at around 450 parts per million or lower would be in Australia's interests
- achieving global commitment to emissions reductions of this order appears unlikely in the next commitment period
- the most prospective pathway to this goal is to embark on global action that reduces the risks of dangerous climate change and builds confidence that deep cuts in emissions are compatible with continuing economic growth and improved living standards.

## 4.2.4 The medium-term target range

The purpose of the 2020 target range and indicative trajectory is to provide guidance to businesses and households about future emissions reductions, as one of a number of factors influencing planning and investment decisions that are sensitive to future energy and carbon costs. In particular, the medium-term target range and trajectory will translate into the number of permits likely to be issued for the Scheme up to 2020.

Announcing and adhering to a single number for Australia's 2020 target would lock in the extent of our contribution before key aspects of an agreement are settled, including its overall ambition and the nature of other countries' commitments. To do so would also transfer financial risk from emitters and energy users to the Government and taxpayers. This would be economically inefficient, weakening the incentive for decision makers to seek out low-carbon strategies for their businesses and to consider a range of carbon price uncertainties and opportunities as part of their everyday decision-making. The alternative of announcing a defined range will encourage businesses to take different positions in the market, promoting efficient allocation of resources and smoother adjustment over time.

The Garnaut Final Report suggested that different targets could form the basis for emissions reductions pathways linked to international action. <sup>36</sup> Under that approach, Australia could proceed along one pathway towards a less ambitious target until the criteria for a second pathway to a more ambitious target were met, at which time Australia could switch pathways. A potential difficulty with that approach is that uncertainty about the scope and parameters of future international agreements makes it difficult to pre-specify precise pathways and mechanistic switching rules. The international situation is likely to contain ambiguities, which would result in a track-switching decision involving significant judgment and discretion, risking apparently arbitrary outcomes for those affected. Furthermore, as the pathways diverge, a switch may cause a large shock to the economy, even with a period of notice. As such, this approach provides adequate levels of certainty to those considering investment decisions.

Expressing the 2020 target as a defined range allows for the significant uncertainties about international arrangements beyond the first Kyoto commitment period, giving the Government flexibility to respond to changing circumstances and science while limiting the range of potential outcomes for business. The higher boundary of the range would represent Australia's minimum commitment to emissions reductions, even in the absence of international agreement for the period beyond 2012. The lower boundary would represent the extent to which Australia will accept tighter targets in the context of a comprehensive global agreement under which all major economies commit to substantially restrain emissions to achieve an ambitious stabilisation goal, and advanced economies take on reductions comparable to Australia's. However, the boundaries do not represent the distinct tracks (suggested by the Garnaut Review).

Adopting a target range of from 5 per cent to 15 per cent below 2000 levels would be consistent with modelling results from both the Garnaut Final Report and *Australia's low pollution future*, showing that the expected economic costs of reductions within that range are likely to be modest in aggregate. This range is also consistent with the view that near-term global action is likely to be less ambitious than Australia's desired long-term outcome.

The target is consistent with a wide range of global atmospheric stabilisation goals depending on the distribution of international efforts. The purpose of the range is to signal Australia's willingness to work towards a worthwhile global agreement that allows for more ambitious action over time as confidence increases and nations accept that deep cuts in emissions are consistent with strong continuing economic growth.

The Government considers that Australia's trajectory strategy, including the 2020 target range, is a credible and constructive contribution to achieving a long-term global solution capable of protecting the planet and promoting our national interest, which includes

supporting Australia's transition to a prosperous low-carbon future. In particular, it compares well to targets proposed by other countries. The 2020 target range will position Australia well to take on further emissions reductions that are likely to be needed beyond that time.

The duration of the commitment period of the next international agreement is not yet known, nor is the overall ambition of the goal for that period. The Government accepts that Australia has much to gain from a global agreement centred on stabilising emissions at 450ppm or lower levels, and will continue to advocate that such an agreement is desirable, while recognising the immediate priority is to ensure action commences so as to build confidence that deep cuts in emissions are compatible with continuing economic growth and improved living standards.

## **Policy position 4.2**

The target range for emissions reductions to be achieved by 2020 will be from 5 per cent to 15 per cent below 2000 levels.

The range represents:

- a minimum (unconditional) commitment to reduce emissions to 5 per cent below 2000 levels by 2020 (projected to be a 27 per cent reduction in per capita terms)
- a commitment to reduce emissions by up to 15 per cent below 2000 levels by 2020 (projected to be a 34 per cent reduction in per capita terms) in the context of global agreement under which all major economies commit to substantially restrain emissions and advanced economies take on reductions comparable to Australia.

The Government recognises that ambitious global action is in Australia's national interest.

In the event that a comprehensive global agreement were to emerge over time, involving emissions commitments by both developed and developing countries that are consistent with long-term stabilisation of atmospheric concentrations of greenhouse gases at 450 ppm  $CO_2$ -e or lower, Australia is prepared to establish its post-2020 targets so as to ensure it plays its full role in achieving the agreed goal.

# 4.3 The path to the medium-term target range

The 2020 target range provides guidance on medium-term policy settings to reduce emissions. However, the pathway taken to reach the 2020 target range will be one of the principal determinants of the size of economic impacts of emissions reductions, particularly those resulting from the Scheme. To assist in setting the economy onto a smooth path and to ensure that the transition to a low-carbon economy takes place at the lowest possible cost, the Government will provide additional guidance by announcing a national emissions trajectory that begins the pathway towards the 2020 target range. After the Scheme commences, the national emissions trajectory will also be used to set caps on emissions for those sectors participating in the Scheme.

## **Green Paper position**

The Government would announce an indicative national emissions trajectory to provide broad guidance on the pathway towards the medium-term target range.

The Government would announce a minimum of five years of the indicative national emissions trajectory, to be extended by one year, every year, as required to maintain a minimum of five years guidance at all times after the commencement of the scheme.

At the end of 2008, in the context of the White Paper, the Government would announce the indicative national emissions trajectory for the period from 2010–11 to 2012–13, and in 2010 the Government would announce a further two years of the trajectory up to and including 2014–15, or to the end of any international commitment period, whichever is longer.





## Figure 4.2: Composition of trajectory (not to scale)

The trajectory is not a projection of Australia's expected annual emissions in the period it covers. It is a statement of the Australian Government's policy intent for the period, and informs the mix of policy instruments used to deliver that goal. Through the Department of Climate Change, the Government will continue to monitor and analyse emissions and publish emissions projections, such as the *Tracking to the Kyoto target* report. Future trajectories will take account of those projections, especially in relation to uncovered emissions (which are less directly affected by a carbon price than emissions covered by the Scheme), but the trajectory is distinct both from projections of expected future emissions and from measures of actual past emissions, and is not intended to replace them.

# 4.3.1 Indicative trajectory or fixed annual targets?

To provide short- to medium-term policy certainty for business, the Government has undertaken to fix the Scheme caps for at least five years in advance (see Chapter 10). This will involve announcing the specific number of permits that are available for allocation or auction for each year.

The trajectory could be defined as a 'firm trajectory' with a specific quantity of emissions for each year, or as a multi-year budget with indicative amounts allocated to each year. A firm trajectory would involve setting a target for each year between the Scheme start and 2020, while a multi-year approach would involve defining a total quantity of allowable emissions over a number of years, and making an indicative (but not firm) allocation to each year within the period.

A firm trajectory would provide a simpler correspondence between the trajectory and the Scheme caps for a particular year, but could also result in fluctuations in emissions (for example, from drought or fire) being transmitted to the Scheme caps through the projections. It might also lead to an expectation that Australia's international commitments would be reconciled against actual emissions on an annual basis, rather than over commitment periods as a whole (such as the five-year first commitment period for the Kyoto Protocol). This would involve unnecessary compliance activity, risk unnecessary year-on-year variation, and expose the Government to a range of uncertainties without improving the integrity or efficiency of overall policy settings. A firm trajectory with a target for each year would be incompatible with a 2020 target that is defined as a range rather than as a single number (as discussed in Section 4.2.4, it is desirable to set the 2020 target as a range).

An indicative trajectory is able to incorporate banking and borrowing of carbon pollution permits. It would represent Australia's national 'emissions allowance', before any purchase or sale of other eligible compliance units, and before banking or borrowing of permits between years. Actual emissions could be higher or lower than the trajectory without compromising the overall aim of reducing emissions. In aggregate, the national trajectory would be expected to equal the total emissions Australia is allowed to emit in the corresponding commitment period under current and future international commitments.

Interpreting the trajectory as a multi-year, indicative commitment is likely to provide greater certainty to business, with firm annual Scheme caps being fixed at least five years in advance on the basis of the indicative trajectory amounts for those years. This will provide clear guidance, while allowing the Government to insulate Scheme caps from year-on-year fluctuations in projected uncovered emissions. The Government would remain accountable for ensuring that actual national emissions are consistent with Australia's international commitments, including through the purchase of eligible international compliance units (for example, internationally assigned amount units, not carbon pollution permits) if emissions are above our assigned amount under an international agreement, or through the sale or banking of units if our emissions are below our assigned amount. This will ensure that actual emissions can be reconciled against the emissions trajectory for each successive multi-year commitment period.

## **Policy position 4.3**

The national emissions trajectory will be an indicative trajectory.

The national emissions trajectory represents the national emissions reduction commitment over the period covered by the trajectory as a whole. It is not a projection of expected actual emissions for that period.

## 4.3.2 Length of the trajectory and timing of announcements

If Australia's international commitments beyond the first commitment period of the Kyoto Protocol were known, the indicative trajectory could extend to the end of the next commitment period. However, the Government needs to balance the need for business certainty against the need for flexibility to adapt Australia's climate change mitigation efforts to future international targets. Some stakeholders made submissions to the Green Paper calling for the trajectory to be fixed for long periods, even as far away as 2050. However, that would constrain Australia's international negotiating flexibility and the Government's ability to pursue Australia's national interest. It would also transfer significant financial risk to taxpayers, as the Government would need to purchase compliance units internationally to reconcile any differences between actual emissions and international targets.

Because the trajectory is only indicative and the Scheme caps are fixed, the length of the trajectory is not critical; however, maintaining consistency between the indicative trajectory and Scheme caps announcements would be sensible. A five-year indicative trajectory strikes a reasonable balance between predictability and flexibility. To maintain a reasonable level of guidance, the indicative trajectory can be extended by one year, every year, from 2010 onwards, so that the trajectory for the current year and four future years are always known. In contrast to the Scheme caps, and because the trajectory is only indicative, there is no need for the trajectory to be legislated.

Because the nature of commitments beyond the first Kyoto commitment period is not yet known, it would be imprudent to extend the first trajectory much beyond the end of that period. Restricting the first indicative trajectory to the last two years of the Kyoto commitment period and the 2013 'tally up' year (during which Kyoto Protocol parties 'make good' any excess emissions) will ensure that Australia does not limit its international negotiating flexibility.

## Policy position 4.4

The first indicative national emissions trajectory covers the financial years 2010–11 to 2012–13 inclusive.

In 2010, the Government will announce a further two years of the trajectory (financial years 2013–14 and 2014–15).

Thereafter, the Government will announce a further year of the indicative trajectory before 1 July each year, so that the indicative trajectory for the current financial year and at least four future financial years is always known.

Should Australia enter an international agreement beyond the Kyoto commitment period, the Government may announce an indicative trajectory to the end of that period.

The indicative national emissions trajectory will not be included in legislation.

## 4.3.3 Issues in deciding the trajectory

A common recommendation in submissions to the Green Paper was that the Scheme should have a 'soft' or gradual start, beginning with a flatter emissions reduction trajectory that gradually becomes steeper over the life of the Scheme:

KPMG's recommendation is for the Government to adopt a slow start to the introduction of the [Carbon Pollution Reduction Scheme] to ensure the creation of an effective and efficient market mechanism and allow time for business to adjust. This will put Australia on the pathway to a low emissions future while not overly compromising the economy should international agreements not be rapidly forthcoming. (KPMG, Submission 545, p. 4).

With more gradual emissions reductions at the beginning of the Scheme a convex trajectory will assist with transitioning to an emissions constrained environment. (Investor Group on Climate Change, Submission 697, p. 9).

Commerce Queensland also considers that a gentle start to emissions reductions is imperative, as it will minimise the potential for serious shocks while businesses adapt to the new economic reality of an economy with a carbon price. (Commerce Queensland, Submission 816, p. 4).

A number of design features supporting smooth adjustment (price caps, banking, borrowing and international linking) will be available to complement a 'soft start' through the choice of trajectory.

A 'soft' start to the Scheme necessarily means that the national trajectory would have a shallower slope at the beginning and become steeper in later years. A shallow trajectory in the first few years of the Scheme would also add to emissions reductions that need to be achieved in later years to achieve the Government's medium-term and long-term target.

It is desirable that any part of the trajectory falling within the Kyoto commitment period is consistent with restraining Australian emissions to an average of 108 per cent of 1990 levels

across the period from 2008 to 2012, to avoid the need for direct government purchases of eligible international units.

In 2013, the year after the Kyoto commitment period, Australia must 'tally up' its Kyoto Protocol accounts and make good on any excess emissions. It is unknown whether future international agreements will be structured in a similar way to the Kyoto Protocol, in that countries restrain their emissions to an average target percentage across a commitment period of a number of years, with a further year thereafter to balance the emissions books.

# 4.3.4 The first indicative trajectory

Current emissions projections (see Figure 4.3) indicate that Australia is likely to meet its Kyoto targets, but that emissions are on an upward path and, in the absence of new policy action, would continue to grow in the future.

The Scheme will be the centrepiece of the Government's strategy to restrain the growth of emissions and position Australia for a low-carbon future. This will involve reversing the growth of Australia's emissions, and putting the nation on a path consistent with the 2020 target range and a reduction of 60 per cent below 2000 levels by 2050. Managing this transition well should ensure that the required emissions reductions are achieved without unnecessary cost.

Emissions in Australia over the first Kyoto commitment period can be thought of as an emissions budget, which can be 'allocated' across the five years of the commitment period in a variety of ways. We are currently on an emissions trajectory that is trending up, with emissions lowest at the beginning of the commitment period and highest in the last year (see Figure 4.3 left hand panel). An emissions peak in the middle of the commitment period will provide a stronger signal of the Government's long-term policy intent to reduce emissions by 60 per cent below 2000 levels, and allow for a smoother and more gradual pathway to the 2020 target range. Emissions in the final year of the period will be lower than otherwise, as shown in Figure 4.3 right hand panel.



## Figure 4.3: Possible shapes for emissions budgets

The Government has calculated the first indicative trajectory by taking the likely net emissions position for 2007–08 (based on the figures in Section 4.1.2) and assigning the remaining emissions budget from the first Kyoto commitment period to the four remaining years of that period, on the basis that national emissions will peak with the introduction of the

Note: These figures are illustrative only and should not be interpreted as actual emissions trajectories.

Scheme in 2010–11 and then trend downwards with relatively gentle reductions in the initial years. The level of the peak and gradient of the slope are consistent with Australia's Kyoto Protocol target of 108 per cent of 1990 emissions on average over the first commitment period. The choice of this trajectory provides additional liquidity at the start of the Scheme to encourage banking of permits. This will help to provide more market depth and assist the management of carbon price uncertainty as the market is being established.

### **Policy position 4.5**

The first indicative national emissions trajectory will be:

- in 2010–11, 109 per cent of 2000 levels
- in 2011–12, 108 per cent of 2000 levels
- in 2012–13, 107 per cent of 2000 levels.

Figure 4.4 shows the indicative trajectory and the 2020 target range compared to the emissions projections published in *Tracking to the Kyoto target*.



## Figure 4.4: Indicative trajectory and 2020 target range

Sources:

2005–06 data published in the National Greenhouse Gas inventory, relative to a 2000 base year.

2006–07 and 2007–08 data from Tables 4.1 and 4.2, relative to a 2000 base year. All other data based on projections published in *Tracking to the Kyoto target*, relative to a 2000 base year.

# The carbon price

Australia's emissions trajectory affects the economy in two ways: through the introduction of a carbon price (which alters the relative prices of goods and services that embody different amounts of emissions) and through the import or export of international compliance units (and corresponding flows of payments and income).

The level of the carbon price is an indicator of the degree and pace of economic adjustment in sectors that are exposed to the price. An emissions trading scheme, such as Australia's Carbon Pollution Reduction Scheme, creates the market conditions for a visible carbon price to emerge and helps to ensure that emissions reductions happen at the lowest cost in the sources of emissions covered by the Scheme. Other areas or aspects of the economy, such as direct emissions from agriculture in the years before 2015, may face a different 'shadow price' of carbon as a result of not being included in the Scheme, but being subject to complementary policies introduced to reduce emissions.

# 4.3.5 Factors influencing carbon prices

The price of carbon in the Scheme will be determined by the balance of supply and demand, or what market participants are willing to pay for carbon pollution permits. This will be influenced by a number of factors, including the following:

- *Demand for emissions-related goods and services*. Emissions occur as a by-product of other activities, such as electricity generation or air travel. If demand for electricity or air travel increases, those sectors will demand more permits. The scale of demand will be influenced by the cost of permits
- *Abatement opportunities.* The design of the carbon market gives liable entities a strong incentive to reduce their emissions where they can do so at a cost per tonne that is lower than the cost of buying permits. The main virtue of a quantity-based scheme is that it automatically calibrates required emissions reductions with the cost of achieving them through coordinated but decentralised decisions by market participants. For example, if the demand for electricity rises, more permits will be required unless it is cheaper for electricity producers to reduce the emissions intensity of their operations
- *The indicative trajectory, and projected uncovered emissions.* The Scheme caps will be determined from the indicative trajectory, and represent the domestic supply of permits
- *Banking and borrowing*. Allowing unlimited banking and limited borrowing of permits will affect when permits are used. Net banking is likely when the future carbon price is expected to be higher than the current price (plus the expected return on capital), and net borrowing is likely when the current price is higher than the expected future price
- *The 2020 target range*. The target range, and views on where the trajectory is likely to intersect with that range, will influence market views on likely future prices and, therefore, the degree to which participants choose to bank permits for future years
- *The international carbon price*. Allowing unrestricted imports of eligible international units and limited exports of carbon pollution permits will provide an effective cap on

domestic prices, as liable parties will be able to acquire and use international units where that is cheaper than purchasing permits

• *Scheme coverage*. In the early years of the Scheme, not all sources of the economy's emissions will be covered, so a nominal allocation of permits will be made to uncovered sectors (see Chapter 10). When new sources of emissions enter the Scheme in later years, both the supply of and the demand for permits will increase. This will put downward pressure on the carbon price if the cost of abatement in the newly covered sources of emissions are lower than the existing carbon price, or upward pressure if the cost of mitigation is higher.

## 4.3.6 Projected carbon costs for various emissions scenarios

Modelling by the Treasury for the Government, using the Scheme design outlined in the Green Paper and published in *Australia's low pollution future* suggests that market participants at Scheme commencement would be willing to pay about \$20—\$28 per carbon pollution permit (in 2005 dollars), where each permit represents one tonne of CO<sub>2</sub>-e. *Australia's low pollution future* also suggests that the carbon price would rise to between \$35 and \$50 per tonne in 2020 (2005 dollars), depending on whether emissions reductions were tracking towards the top or the bottom, respectively, of the 2020 target range.

Table 4.4 shows the different carbon prices projected by the modelling work conducted for the Garnaut Final Report and by the Treasury.

	Garnaut Waiting Game <sup>a</sup>	Garnaut Copenhagen Compromise <sup>ª</sup>	Garnaut 550 ppm⁵	Garnaut 450 ppm <sup>b</sup>	CPRS – 5⁵	CPRS – 15 <sup>⁵</sup>
Australian emissions trading commences (year)	2010	2010	2013	2013	2010	2010
2020 target (per cent below 2000 levels)	No target	-5	-10	-25	-5	-15
Carbon price when (c) emissions trading commences	(see note d)	(see note d)	\$30	\$52	\$23	\$32
2020 carbon price (in 2005 dollars)	\$30	\$53	\$35	\$60	\$35	\$50
Assumed 2050 target (per cent below 2000 levels)	No target	60	80	90	60	60

Table 4.4: Modelled carbon prices in six scenarios

(a) Published in the Garnaut Final Report.

(b) Published in Australia's low pollution future.

(c) These figures are the nominal carbon price when emissions trading commences.

(d) Both the Garnaut Waiting Game and Copenhagen Compromise scenarios assume that emissions trading commences in 2012 with a fixed price of \$20 per tonne. In the Waiting Game scenario, the fixed price remains indefinitely, rising at 4 per cent a year, whereas in the Copenhagen Compromise scenario, the fixed price rises at 4 per cent a year until 2013, after which it floats freely.

Scheme design allows market participants to hold permits for future use. This means that participants are likely to hold permits if the increase in value of those permits is expected to be higher than for equivalent assets. This is called banking, and acts to raise the carbon price in the early years of the Scheme, but in the long run means that carbon prices are lower. Reflecting this behaviour, the Treasury modelling assumes that the emissions price grows by 4 per cent annually above inflation (representing a risk-free real rate of 2 per cent and a risk premium in the permit market of 2 per cent). Without banking, a lower price at the start of the

Scheme could be expected, but the price would also be expected to rise rapidly. The absence of banking would impose higher costs on the economy, forcing business collectively to meet an explicit annual cap. Banking is therefore a way of promoting smooth adjustment as the carbon price begins to be incorporated into the economy, as well as allowing abatement efforts to be allocated sensibly over time. It also provides a market signal about expected future prices: significant levels of banking would indicate that market participants expect deeper emissions reductions to be required in the future.

The projected carbon prices in Table 4.4 are somewhat lower than those currently seen in other carbon markets, particularly those in the European Union Emissions Trading Scheme (EU ETS). This is because the EU ETS currently has limited coverage and restricted access to international trade compared to the Scheme proposed in the Green Paper and modelled in *Australia's low pollution future*. The comparison table in Appendix B in this White Paper shows how the Green Paper Scheme design compares to the EU ETS design.

Comparison of the projected 2020 carbon prices in the different modelling scenarios underscores how important an eventual global agreement is to Australia. One of the significant differences between the Garnaut scenarios and the CPRS scenarios is the nature of the framework for mitigation action under which Australia begins a regime of emissions trading. For example, comparing the Garnaut Copenhagen Compromise to the CPRS–5 scenario shows Australia could achieve the same emissions reduction target at 2020 with quite different domestic carbon prices in that year (\$53 in the Copenhagen Compromise scenario, and \$35 in the CPRS-5 scenario: Table 4.4). While some of the difference results from other variations between the two scenarios (for example, the Garnaut Copenhagen Compromise scenario restricts access to banking whereas the CPRS-5 scenario has unlimited banking), it demonstrates the expected importance of a broader and deeper international carbon market, which would create access to lower mitigation opportunities in other regions, helping minimise the cost of achieving Australia's emission reduction goals.

Once the Scheme commences and the Scheme caps and other parameters are set, the price of permits will be determined by the market. Short- and medium-term permit prices will be determined by the Scheme caps and gateways, the cost of abatement in Australia, the price of eligible international units available through the global carbon market, and expectations about future prices relative to current prices. The design of the Scheme provides strong incentives to innovate and seek out least-cost abatement opportunities, but those features of the Scheme also mean that there will be a level of carbon price uncertainty inherent in its operation.

Linking the Scheme to international markets by allowing unrestricted imports of eligible international units will provide an effective cap on domestic carbon prices. This is also an important mechanism for ensuring that abatement is achieved at the lowest cost globally as well as nationally. Because Australia has a small and open economy and relatively fewer opportunities to reduce emissions than some other economies, the global carbon price and the flow of eligible international units into Australia are expected to become the primary determinant of the impact of the Scheme on the Australian economy in the medium term, as more Scheme participants choose to purchase compliance units from overseas.

One way to provide some certainty about the upper-end cost impacts of the Scheme is to set a price cap. A Scheme participant is generally assumed to be prepared to pay up to the price cap for a permit. If the cost of permits rises above the cap, a Scheme participant will be able to access the price cap rather than buy permits. This will provide a safety valve against possible

high-end price volatility and also set an upper limit on the potential economic impact of the Scheme. The price cap is discussed further in Chapter 8.

- 2 Department of Climate Change, *Tracking to the Kyoto Target 2007: Australia's Greenhouse Emissions Trends 1990 to 2008-2012 and 2020*, Commonwealth of Australia 2008.
- 3 Australian Government's Initial Report under the Kyoto Protocol, Update, 21 October 2008, available at http://unfccc.int/national\_reports/initial\_reports\_under\_the\_kyoto\_protocol/items/3765.php.
- 4 *The Australian Greenhouse Emissions Information System online database*, Commonwealth of Australia, 2008 (accessed 6 November 2008).
- 5 Figures derived from Australia's national greenhouse gas emissions in 1990 and 2000 (from *The Australian Greenhouse Emissions Information System online database*, Commonwealth of Australia, 2008 (accessed 6 November 2008)) and the Australia Bureau of Statistics' estimate of Australia's population in those two years (from *Australian Historical Population Statistics*, ABS catalogue item 3105.0.65.001).
- 6 Australia's low pollution future: Costing Australia's climate change mitigation effort summary report, Commonwealth of Australia, 2008, p. 18.
- 7 *Australia's low pollution future: Costing Australia's climate change mitigation effort*, Commonwealth of Australia, 2008, p. 13.
- 8 *Australia's low pollution future: Costing Australia's climate change mitigation effort*, Commonwealth of Australia, 2008, p. 27.
- 9 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 247.
- 10 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, pp. 247, 249.
- 11 *Australia's low pollution future: Costing Australia's climate change mitigation effort*, Commonwealth of Australia, 2008, p20.
- 12 *Australia's low pollution future: Costing Australia's climate change mitigation effort, Summary report,* Commonwealth of Australia, 2008, Section 2.3.2.
- 13 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 325.
- 14 *Australia's low pollution future: Costing Australia's climate change mitigation effort,* Commonwealth of Australia, 2008, p229.
- 15 *Australia's low pollution future: Costing Australia's climate change mitigation effort*, Commonwealth of Australia, 2008, p 82.
- 16 *Australia's low pollution future: Costing Australia's climate change mitigation effort*, Commonwealth of Australia, 2008, p227.
- 17 *Australia's low pollution future: Costing Australia's climate change mitigation effort,* Commonwealth of Australia, 2008, p 229.
- 18 Australia's low pollution future: Costing Australia's climate change mitigation effort, Commonwealth of Australia, 2008, p 230.
- 19 *Australia's low pollution future: Costing Australia's climate change mitigation effort*, Commonwealth of Australia, 2008, p 180.
- 20 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 353.

<sup>1</sup> Department of Climate Change, *Tracking to the Kyoto Target 2007: Australia's Greenhouse Emissions Trends 1990 to 2008-2012 and 2020*, Commonwealth of Australia 2008.

- 21 *Australia's low pollution future: Costing Australia's climate change mitigation effort,* Commonwealth of Australia, 2008, p 226.
- 22 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 283.
- 23 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 294.
- 24 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 12.
- 25 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 294.
- 26 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 295.
- 27 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 295.
- 28 Australia's low pollution future: Costing Australia's climate change mitigation effort, Commonwealth of Australia, 2008, p229.
- 29 Australia's low pollution future: Costing Australia's climate change mitigation effort, Commonwealth of Australia, 2008, p229.
- 30 *Australia's low pollution future: Costing Australia's climate change mitigation effort,* Commonwealth of Australia, 2008, p144.
- 31 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 268.
- 32 *Australia's low pollution future: Costing Australia's climate change mitigation effort,* Commonwealth of Australia, 2008, p. ix.
- 33 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. xxx.
- 34 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 289.
- 35 *Australia's low pollution future: Costing Australia's climate change mitigation effort,* Commonwealth of Australia, 2008, p. 89.
- 36 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, p. 290.

# 5 A framework for the Carbon Pollution Reduction Scheme

The Australian Government intends to commence an emissions trading scheme—the Carbon Pollution Reduction Scheme—in 2010. The framework that has been used to assess design options for the Scheme is outlined in this chapter.

The Government's intention is to commence the Carbon Pollution Reduction Scheme on 1 July 2010. The Scheme will be Australia's primary policy tool to drive reductions in emissions of greenhouse gases. The Scheme will reduce carbon pollution, that is, pollution caused by emissions of carbon dioxide and other greenhouse gases. The consequent economic cost of carbon pollution is not currently reflected in the costs of business or the price of goods and service - because firms face no cost from increasing emissions, the level of emissions is too great. Unless businesses and individuals bear the full responsibility for their consumption and production decisions, the level of carbon pollution will remain too high.

The Scheme is designed to redress this market failure. Emissions trading is simply a mechanism to achieve an objective. That objective is to reduce carbon pollution, and to do so efficiently by putting a cap on emissions.

Addressing this market failure is a significant economic reform. Tackling climate change will not be easy, and there will be adjustment costs. However, this is not a choice between a no-cost option and an option with costs. It is a choice between taking responsible action now, or neglecting to act and facing much higher costs and more serious climate change later.

Australia's future economic prosperity will depend in large part on how effectively we manage the transition to a carbon-constrained world. Economic reform is necessary to improve our carbon productivity—that is, to increase our output per unit of carbon emitted—just as previous economic reforms improved the productivity of our labour and of capital. The nations that are the most open and adaptive to change are those most likely to prosper in the long term.

This chapter outlines the framework that has been used to assess design options for the Scheme:

- Section 5.1 sets out the objective of the Carbon Pollution Reduction Scheme.
- Section 5.2 describes the criteria that have been used for assessing different design options.
- Section 5.3 explains how a 'cap and trade' scheme works.

# 5.1 The objective of the Scheme

In making the choices involved in the design of the Scheme, the Government is guided by the objective of the Scheme.

## **Green Paper position**

The objective of the scheme is be to meet Australia's emissions reduction targets in the most flexible and cost-effective way; to support an effective global response to climate change; and to provide for transitional assistance for the most affected households and firms.

A number of submissions in response to the Green Paper addressed Government's proposed objective for the Scheme, the majority of which were generally supportive, such as those from Cement Australia (Submission 850), BP (Submission 355) and Millennium Inorganic Chemicals (Submission 794).

# 5.1.1 Meeting Australia's carbon pollution reduction targets in the most flexible and cost-effective way

The need to reduce global greenhouse gas emissions is clear: failure to reduce emissions will lead to a loss of environmental amenity and very large economic costs. However, policies designed to avoid the costs of climate change will generally involve their own costs. Therefore, the first part of the objective recognises that it is desirable for emissions reduction targets to be achieved in the most flexible and cost-effective way.

The Scheme will use a cap and trade mechanism to reduce greenhouse gas emissions. By setting a limit on emissions, the right to emit greenhouse gases becomes scarce — and scarcity entails a price. Putting a price on emissions will drive a structural shift in the economy, from emissions-intensive towards low-emissions goods, technologies and processes. Modelling conducted by the Treasury published in *Australia's Low Pollution Future* illustrates that while growth in emissions intensive sectors of the economy is likely to slow when a carbon price is introduced, growth in low and negative emission sectors is likely to accelerate. Therefore, at the national level large reductions in emissions do not require reductions in overall economic activity<sup>1</sup> - indeed, Treasury modelling indicates that strong growth can be sustained while delivering significant reductions in emissions.

One of the benefits of a market-based mechanism is that the Government does not need to determine where or how emissions are best reduced. Emissions trading allows the efficient discovery of abatement opportunities. Consumers and businesses, who generally have better information about their preferences and costs, can decide the best way to reduce emissions. Long-run expectations of carbon prices will drive the development of new low-emissions technologies that are consistent with lowest cost emissions reductions.

Some stakeholders consider that the Scheme objective should explicitly focus on driving technological change and investment. Shell Australia proposed that 'a central objective of climate change policy should be the efficient direction of capital within the market towards low and zero carbon emission investment' (Submission 561, p. 2). As shown by the results of the Treasury modelling, the Scheme is expected to drive large scale investment in low emissions technology. However, fundamentally the Scheme is intended to reduce Australia's emissions. The development and deployment of low emissions technologies is a likely—indeed, necessary—element of achieving this goal, but is not the Scheme's objective in its own right.

Other stakeholders consider that the Scheme should focus on achieving emissions reduction goals solely through domestic action. One proponent of this view is Friends of the Earth Australia, which states that 'allowing offsets either directly or indirectly via other markets into the scheme will undermine the effectiveness of the scheme's capacity to reduce [domestic] emissions' (Submission 411, p. 5).

The abatement of one tonne of emissions has the same environmental benefit whether it occurs in Australia or elsewhere in the world. Therefore, it is not desirable for the Scheme objective to focus on achieving emissions reduction targets primarily through domestic abatement, as that would be more costly for Australian businesses and consumers but deliver no additional global environmental gain.

# 5.1.2 Supporting an effective global response to climate change

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

As discussed in Chapter 1 and Chapter 3, Australia has the standing and capacity to positively shape an international agreement that addresses climate change beyond 2012. Australia's mitigation effort makes a direct contribution to reducing global emissions and also highlights Australia's commitment to achieving an ambitious global outcome, establishing our role as a serious and credible participant.

Some stakeholders considered that the objective of the Scheme should place a greater emphasis on an international agreement on emissions reductions. For example, the World Wide Fund for Nature (WWF) believes that the Scheme should have three objectives, one of which should be 'to actively foster an international agreement' (Submission 522). On the other hand Millenium Inorganic Chemicals (Submission 794) would prefer the Scheme be contingent on a global constraint.

While the Government understands the WWF desire for a global agreement, it does not believe that the current objective is incompatible with this objective. The Government intends the second part of the objective, to support an effective global response to climate change, to encompass the fact the design elements should foster international agreement.

A well-designed and successfully implemented Scheme can contribute to shaping the global response, for example by:

- helping Australia meet its international climate change obligations, including those under the United Nations Framework Convention on Climate Change (UNFCCC), our national target under the Kyoto Protocol and any post-2012 agreement
- contributing to a reduction of greenhouse gas emissions
- demonstrating to other countries that emissions reduction targets can be achieved cost effectively through an emissions trading swith broad coverage
- supporting Australia's international negotiating position

• helping to support the development of international emissions trading.

With respect to the Scheme being contingent on a global agreement, this is not really a question of whether the Scheme should be implemented, but whether Australia should take action to limit emissions now. As outline in Chapter 1, the Government accepts the finding of the Garnaut Final Report that the costs of delaying outweigh the costs of action.

# 5.1.3 Providing transitional assistance for the most affected households and firms

The final part of the objective recognises that, because the Scheme will increase the cost of carbon, some parts of society, especially low-income households and those parts of business that are emissions intensive, will face particular challenges. Therefore, the Government must carefully manage the adjustment to a carbon-constrained economy.

As an integral part of Scheme design, the Government will implement a range of measures to assist households and businesses adjust to the Scheme. Measures for households are discussed in Chapter 17. Measures to assist businesses are discussed in Chapter 18.

# 5.1.4 Possible other Scheme objectives

Greenpeace Asia Pacific consider the objective of the Scheme 'should also include Ecological Sustainable Development (ESD) principles, to guide the "weighting" of possibly competing objectives, and the precautionary principle' (Submission 692, p. 4). One Thousand Years (Submission 743) agreed with this view. ESD principles are inherent in the objective of the UNFCCC and the Kyoto Protocol.<sup>2</sup> The Government considers that, like the international architecture, the objective of the Scheme is consistent with ESD principles as it primarily relates to addressing climate change by reducing emissions. Furthermore, the assessment criteria that have been applied in designing the Scheme reflect ESD principles. However, the Scheme design has been deliberately focused on reductions in greenhouse gas emissions, rather than on an explicit goal to promote other environmental or social objectives. Additional objectives would be targeted more effectively and efficiently through other policies.

## 5.1.5 Conclusion

The Government has listened to the feedback from stakeholders and believes the objective proposed in the Green Paper adequately reflects the issues raised. The Government confirms the Scheme objectives to be sound, and its final policy position is to confirm that objective.

## Policy position: 5.1

The objective of the Carbon Pollution Reduction Scheme is to meet Australia's emissions reduction targets in the most flexible and cost-effective way; to support an effective global response to climate change; and to provide for transitional assistance for the most affected households and firms.

# 5.2 Assessment criteria

The Scheme will be designed to meet the overall objective. However, in considering each element of the Scheme, the Government has carefully assessed the various design options using a consistent set of criteria.

## **Green Paper position**

The Government indicated that while the Carbon Pollution Reduction Scheme would be designed to meet the overall objective, each design element of the Scheme would involve a choice between multiple design options. The Government's preferred position was that design options be assessed against the following assessment criteria:

*Environmental integrity*. Design options should achieve the desired environmental outcomes. Impacts on environmental outcomes can be direct, for example when a cap on emissions is set, or indirect, such as when a design option affects the credibility of the Scheme or the development of an effective global emissions constraint.

*Economic efficiency*. The new emissions trading market should achieve its environmental goals as efficiently as possible; that is, permits should go to the highest value use, and the lowest cost abatement should be undertaken. Furthermore, the operation of the Scheme should not impose an excessive compliance burden, and should be simple and predictable to facilitate informed and efficient investment decisions.

*Minimisation of implementation risk.* A complex Scheme design poses greater risks to the smooth and timely commencement and ongoing implementation of the Scheme. Some design parameters and services may help to ensure that the transition to the Scheme is manageable.

*Policy flexibility*. Flexibility in the design of aspects of the Scheme is desirable to allow the Scheme to respond to changing circumstances and to allow the inherent uncertainties associated with climate change to be dealt with appropriately.

*Promotion of international objectives*. Design options should support Australia's international negotiating objectives and be consistent with international obligations, including trade and climate change treaties. The Scheme's design should be compatible with relevant internationally accepted standards and practices.

## **Green Paper position (continued)**

*Implications for the competitiveness of traded and non-traded industries.* The introduction of a carbon price ahead of a global carbon constraint has the potential to affect the international competitiveness of traded industries in Australia. In developing measures to address such impacts, and in the design of the Scheme more generally, it is important to consider the effects of different options on the competitiveness of all Australian industries. This will ensure the most efficient allocation of resources and that the productive potential of the economy is maximised.

Accountability and transparency. Decision makers are required to justify their decisions and are subject to public scrutiny. The Scheme's operational rules and parameters should be made simple and transparent.

*Fairness*. Distributional impacts should be taken into account in the overall package of Scheme design and associated assistance measures.

Most stakeholders support these criteria as a basis for assessing different design options. For example, a joint submission from the energy industry, including from the Energy Supply Association of Australia, the National Generators Forum, the Energy Retailers Association of Australia and the Australian Pipeline Industry Association, expressed support for the criteria (Submission 715, p. 8). The submission agreed with the Green Paper that some criteria are more relevant to particular design issues than others and that some aspects of the design may require a trade-off between two or more of the criteria.

Other stakeholders highlighted different approaches that are nevertheless consistent with the Government's proposed approach. For example, ExxonMobil stated:

... we analyse and compare the various policy options by evaluating the degree to which they:

- ensure a uniform and predictable cost of [greenhouse gas] emissions across the economy
- consider the priorities of the developing world
- maximise the use of market forces
- promote global participation
- minimise complexity and administrative costs
- maximise transparency to companies and consumers
- adjust in the future to new developments in climate science and the economic impacts of policies (Submission 254, p. 3).

These criteria are consistent with those proposed in the Green Paper. The first and third points relate to the economic efficiency criterion, which emphasises the efficient achievement of

emissions reductions through a well-functioning market. The second point (requiring consideration of the developing world) and the fourth point (about global cooperation) are components of the criterion promoting international objectives. The degree to which complexity and administrative costs are reduced, raised in point five, relates to minimising implementation risk because it is about ensuring a manageable transition for the Scheme. The need for transparency reflects the accountability and transparency criterion. The final point (about the responsiveness of the policy to developments in science and the economic impacts of policies) is captured by the policy flexibility criterion, which recognises that circumstances will shift over time.

Chevron Australia (Submissions 716) suggested that some additional elements should be added to the assessment criteria definitions. Many of those suggestions are consistent with the proposed criteria. However, Chevron considered that the desire to minimise implementation risk should not be used to justify shifting risk from the Government to liable parties. The Government agrees with this point. The Government always intended that the 'minimisation of implementation risk' criterion considers implementation risk for the Scheme in its entirety; it is not focused solely on implementation risks for government but also on risks for liable entities and other market participants.

Chevron also considered that policy flexibility should not be used to justify shifting risk from government to liable parties. It would also be inappropriate for the Scheme to be designed to shield liable entities from the real uncertainties simply by shifting risks to the taxpayer. This is unlikely to lead to an efficient response over the long term. As for any risk allocation decision, costs will be minimised when the risk is allocated to the party most able to control it. That said the Government recognises that while allocating risk to those most able to control it is the most efficient approach, such an allocation also has implication for perceived equity. In keeping with the Government's balanced approach to Scheme design, the Government has taken account of both equity and efficiency consideration when contemplating risk allocation decisions.

On the implications for the competitiveness of traded and non-traded industries, Chevron considered that Australia's trade-exposed industries must not be competitively disadvantaged, in terms of either production from existing operations or investment in new facilities. They agreed that the timing of new trade-exposed facilities must not be affected by the availability of carbon pollution permits. While the Government agrees that support should be provided to Australia's emissions-intensive, trade-exposed industries, the Government considers that it is also important to take into account implications for the competitiveness of non-traded industries. Higher assistance for trade-exposed industries will tend to draw resources away from non-trade-exposed industries, raising their costs and impacting on their profitability.

The Government recognises that different stakeholders will both weigh the criteria differently and assess policies differently even when using the same criterion. For example, some stakeholders believe that the fairness criterion requires that the polluter should pay, others that the fairness criterion should be interpreted as the cost on business compared with a world with no carbon constraint. The Government considers that much of what has been suggested by stakeholders is captured by the proposed assessment criteria and that they are the appropriate basis for assessing design options.

## Policy position 5.2: Assessment criteria

Design options have been assessed against the following assessment criteria:

- environmental integrity
- economic efficiency
- minimisation of implementation risk
- policy flexibility
- promotion of international objectives
- implications for the competitiveness of traded and non-traded industries
- accountability and transparency
- fairness.

# 5.3 A cap and trade Scheme

The Scheme will put a price on carbon in a systematic way throughout the economy. It will employ a 'cap and trade' emissions trading mechanism to limit greenhouse gas emissions. Setting a limit means that the right to emit greenhouse gases becomes scarce—and scarcity entails a price. The mechanics of the Scheme are set out in Box 5.1.

#### Box 5.1: Mechanics of a cap and trade Scheme

Emitters of greenhouse gases need to acquire a permit or emissions unit for every tonne of greenhouse gas that they emit.

The quantity of emissions produced by firms will be monitored, reported and audited.

At the end of each year, each liable entity will need to surrender a permit or unit for every tonne of emissions that they produced in that year.

The number of permits issued by the Government in each year will be limited.

Firms will compete to purchase the number of permits that they require. Firms that value the permits most highly will be prepared to pay most for them, either at auction or on a secondary trading market. For some firms, it will be cheaper to reduce emissions than to buy permits.

Certain categories of firms will receive some emissions permits for free, as a transitional assistance measure. Those firms could use the permits or sell them.

A critical point is that the costs to the community arise not from the Scheme itself but from the overarching commitment to reduce national emissions. Alternative approaches to reducing emissions will impose higher costs on the community because they would not use the incentives created by the market mechanism to draw out all low-cost opportunities to reduce emissions.

As well as driving actual emissions reductions, the introduction of a carbon price provides a financial incentive for investment in low emissions technology research, development and commercialisation. Investment in technological solutions that reduce greenhouse gas emissions has the potential to deliver high financial returns to those sectors with a high cost of abatement. Those sectors have a strong incentive to reduce their exposure to a carbon liability.

An emissions constraint should also lead to changes in consumer behaviour that support a lower carbon economy. For example, higher electricity prices will provide an incentive for consumers to conserve energy in their homes.

The implications of the Scheme will be significant. Indeed, the capacity for the Scheme to change the economy over time puts it on par with other important economic reforms, such as reducing tariffs or deregulating the financial system. Placing a limit, and hence a price, on emissions has the potential to change the things we produce, the way we produce them, and the things we buy.

## 5.3.1 Essential elements of a cap and trade Scheme

In a cap and trade scheme, aggregate emissions are capped at a level that is consistent with the environmental objective. There are several different types of greenhouse gases and many different sources of emissions across the Australian economy. The Scheme coverage establishes the types and sources of emissions that are subject to the cap. Scheme coverage is discussed in Chapter 6.

The cap sets a limit on the aggregate annual emissions from all the covered gasses and from all the covered sources of emissions. The level of the Scheme cap determines the environmental contribution of the Scheme: the lower the cap, the more abatement that must occur. The actual cap and the scope of coverage can be determined independently. However, broader coverage will reduce abatement costs and therefore allow for more ambitious emissions caps. Individual caps are not set for individual sectors or entities but for the Scheme as a whole. Caps can be set for single years or for a number of years. As discussed in Chapter 10, the Government will set annual caps.

The number of tradeable carbon pollution permits will be equal to the Scheme cap—if the cap were to limit emissions to 100 million tonnes of carbon dioxide equivalent ( $CO_2$ -e) in a particular year, 100 million emissions permits would be issued for that year. Additional permits will be issued when providers of forestry abatement opt-in to the Scheme or when synthetic gas is destroyed.

Entities responsible for emissions sources covered by the Scheme will be obliged to surrender an eligible compliance permit for each tonne of CO<sub>2</sub>-e that they have emitted during the compliance year.

A common misconception is that the Scheme will set limits on emissions for individual companies or facilities, and that companies will be able to sell permits if they emit less than their limit, or be required to buy permits if they emit more. This is not the case. The limit on

emissions applies to all covered emissions sources—there is no limit on emissions from individual sectors, firms or facilities. Companies are free to emit at whatever level they choose, as long as they surrender an eligible compliance permit for every tonne of those emissions at the end of the compliance period. Some companies may receive some permits free of charge, but that does not change this basic compliance rule in any way.

Carbon pollution permits will be tradeable, and their price will be determined by the market. The price will be positive (greater than zero) if permits are scarce—that is, if the economy's unrestrained demand for creating emissions exceeds the number of available permits. As discussed in Chapter 8, the more efficient the carbon market, the more cost effectively abatement will be achieved.

The Scheme cap will achieve the desired environmental objectives only if it is enforced. Entities responsible for emissions covered by the Scheme must monitor their emissions and report to the Government. Arrangements for the verification and assurance of emissions and a penalty for non-compliance are discussed in Chapter 7. Non-compliance will attract a penalty.

Carbon pollution permits could enter the market either by auction or by administrative allocation. As long as the cap remains unchanged, the way permits enter the market does not significantly affect the abatement outcome. A company will face the same incentives regardless of whether it receives carbon pollution permits via an administrative allocation or by purchasing them in the market. Companies are likely to be willing to pay for permits if their internal costs of abatement are higher than the price of permits and to directly reduce their emissions if their internal costs of abatement are lower than the price of permits. Companies that own permits would be willing to sell them if the revenue received from selling permits exceeds the profits from using them. A company perspective is illustrated in Box 5.2.

## Box 5.2: A company perspective

Different companies will have different abatement costs and opportunities. Under the Scheme, the decision whether to emit or abate will differ from company to company. Consider a situation where the market price for a carbon pollution permit is \$25.

Company A can reduce its emissions for a cost of \$20 per tonne of emissions. Its cost of abatement is lower than the market price for a permit. If the company had permits, it would sell them. If the company had no permits, it would be cheaper for it to abate than to buy a permit so that it could emit. Company A will be \$5 better off by abating.

Company B can reduce emissions for a cost of \$50 per tonne of emissions. Its cost of abatement is higher than the market price for a permit. If the company had permits, it would use them and emit. If the company had no permits, it would buy them in the market so it could emit.

These market incentives work to move the permits to the highest value use and to encourage the cheapest abatement to occur first. The ability to trade permits ensures that the emissions cap is achieved at least cost to the economy.

The introduction of a carbon price will change the relative prices of goods and services, making emissions-intensive goods more expensive relative to those that are less emissions

intensive (see Box 5.3). This provides the right incentives for consumers and businesses to adjust their behaviour, resulting in a reduction of emissions.

## Box 5.3: The Carbon Pollution Reduction Scheme will change relative prices

This stylised example illustrates how relative prices of goods will change with the introduction of an emissions trading scheme. In this example, an assumption is made that the Scheme increases energy costs by 20 per cent, energy costs being directly related to emissions. The two entities, particularly entity B, will have an incentive to find ways to produce their output with less energy and therefore less emissions as a result of their production. It is assumed that the additional cost of production associated with emissions is passed through to the consumers of their products. So, consumers will also have an incentive to change their consumption which will also lead to less emissions.



# 5.3.2 Comparing the Scheme with other possible policy responses

In the Green Paper the Government argued that market-based approaches to reduce emissions allow abatement to be achieved at a lower cost to the economy than direct regulation because abatement can occur where and when it is most cost-effective. It also argued that an emissions trading scheme is preferable to a carbon tax.

Both taxes and emissions trading schemes place a price on carbon. An emissions trading scheme restricts the quantity of emissions and allows the market to set the price of carbon pollution permits—the carbon price. A carbon tax increases the cost of emissions by a set amount and allows the market to determine how much abatement to undertake in response—that is, whether it is more cost effective to pay the carbon tax or to undertake abatement.

If the Government had full information about the relationship between carbon prices and the quantity of emissions reductions that such prices would induce, a carbon tax and an emissions trading scheme could deliver similar economic and environmental outcomes. However, while the Government can make estimates, it does not have complete information about that relationship.

The key benefit of an emissions trading scheme over a tax is that it secures the environmental objective by controlling the quantity of emissions directly. It is possible that emissions trading

may provide greater long-term policy credibility, as the community can see the direct link between the policy instrument and the environmental objective. Australia's international commitments are likely to continue to be defined as quantitative targets, so this approach allows international obligations to be managed more effectively.

In the Green Paper that Government recognised that governments can also achieve abatement by regulating or placing legal restrictions on the activities that cause greenhouse gas emissions. However, the Green Paper noted that direct regulatory measures are often costly to administer and to comply with. Regulatory approaches provide little incentive to innovate or to do more than is absolutely necessary for compliance.

Relying entirely on alternative regulatory approaches, involving mandating some activities and proscribing others, is highly unlikely to achieve an efficient outcome. The primary reason is that the Government has insufficient information to know where the cheapest abatement opportunities might lie. Australia's emissions are the result of myriad individual decisions, any one of which could potentially be altered when faced with a carbon price. The Government could never know the right combination of decisions to change—and even if it did, this mix is likely to change over time. For example, even at a high level, the Government cannot know by how much each sector of the economy should reduce its emissions to achieve a particular emissions outcome in the least costly way. However, if the Government were to rely purely on regulatory measures, it would in fact be determining this balance. Because the Government can only ever have incomplete information about the economy's abatement potential, the abatement outcome of a purely regulatory approach is likely to be different from that achieved by emissions trading. The Scheme uses a market to determine where, and at what cost, emissions reductions occur. Instead of the Government deciding the best way to reduce emissions, the market allows consumers and businesses to do so, on the basis of their own preferences and costs.

In their submissions in response to the Green Paper, a number of stakeholders recognised the benefits of emissions trading. For example, BP Australia 'endorses the use of a well-designed emissions trading scheme as the centrepiece of climate policy—to provide for market-based, least-cost solutions to [greenhouse gas] emissions reduction' (Submission 355, p. 2).

Some stakeholders disagreed with the proposition that emissions trading was the best mechanism for achieving the required abatement, arguing that a carbon tax would provide an increased level of certainty for industry and the investment community. This argument was put forward by a number of companies, including ExxonMobil Australia (submission 254) and some industry associations, including the National Association of Retail Grocers of Australia (Submission 899).

It is unlikely that any government would be able to remove the real uncertainties associated with greenhouse gas mitigation over the long term. Both a carbon tax and an emissions trading scheme would need to be adjusted over time to reflect new emissions targets as the international architecture matures and scientific understanding of the global mitigation effort improves.

The Scheme has a range of measures to allow market participants to manage price uncertainty. Those measures include advance notice of the national trajectory and targets, Scheme caps, and linking arrangements; banking and limited borrowing of permits; and a price cap in the initial years of the Scheme. Furthermore, an emissions trading scheme can be expected to provide market participants with a range of options, such as derivatives products, that will allow them to directly manage price risks.

To provide a similar level of certainty under a tax system, the Government would need to pre-commit to tax rates over a number of years. This would be difficult because it would require an understanding of the changing relationship between the tax rate and emissions levels, and the influence of changes in technology and shifts in the economy on that relationship.

Some stakeholders maintained that a carbon tax was administratively more simple and could therefore be implemented sooner. For example, Mark Stewart noted that one of the advantages of a tax was that it could be 'implemented much sooner than complex cap-and-trade systems. Because of the urgency of the climate crisis, we do not have the luxury of waiting while the myriad details of a cap-and-trade system are resolved through lengthy negotiations' (Submission 991, p. 5).

For a number of reasons, the Government does not consider a carbon tax more administratively simple than an emissions trading scheme:

- Most of the implementation and administrative requirements apply equally to an emissions trading scheme and a carbon tax. For example, both would require the Government to establish the coverage of the mechanism; establish and implement a reporting and compliance regime; establish either the appropriate tax rate or the Scheme cap; establish governance arrangements; consider the impacts on households and industry, and any necessary assistance measures; and develop and pass legislation.
- The Government would need additional information about the relationship between carbon prices and resulting emissions to design a tax system that delivered the same level of control over the quantity of emissions.
- An emissions trading scheme can easily be linked to other schemes, giving firms the capacity to access least-cost abatement opportunities internationally. As this occurs, carbon prices will equalise across countries, creating a global carbon price, without the need for centralised decision-making (other than the decision to allow linking). In theory, carbon taxes could also be harmonised, but in practice currently there is no international process that is considering such an approach.

The Garnaut Final Report recognised the benefits of emissions trading over a carbon tax. However, the report proposed a transition phase (2010 to the end of 2012) in which permits would be sold at a fixed price rather than auctioned. The Government does not consider a fixed-price transition desirable (Chapter 15 discusses this issue in more detail).

Some stakeholders consider that, while emissions trading is an appropriate measure, it is not sufficient to overcome all barriers to emissions reductions. For example, the Green Building Council Australia (Submission 496), Engineers Australia (Submission 322), the World Wide Fund for Nature (Submission 522) and a number of individuals suggested that additional regulatory measures should be adopted, for example to improve energy efficiency and encourage the uptake of renewable energy. While emissions trading is an efficient way of achieving low-cost national abatement, the Government recognises that additional measures will still be required to transition to the low-carbon economy. There is a role for

complementary measures to work alongside the Scheme to help to reduce Australia's emissions. Complementary measures are discussed further in Part 3.

Other stakeholders were concerned that emissions trading is prone to rent-seeking behaviour and therefore unlikely to achieve the established environmental objective. For example, Friends of the Earth stated that it is 'sceptical that the establishment of a trading scheme will be able to withstand the political pressures of the fossil fuel industry and other polluters who will attempt to reduce their liabilities under such a scheme' (Submission 411, p. 1). Others focused on the impact of rent seeking on the cost-effectiveness of the Scheme. For instance, Greenpeace stated that 'it is important to accept ... [that] pressure from special interest groups, will be a distortion of the [emissions trading] mechanism' (Submission 692, p. 3).

It is unclear whether the Scheme would be any more prone to rent seeking by special interest groups than would be the case with other policy approaches. Indeed, the transparency of the Scheme may be some protection against rent seeking. For example, the issue of the appropriate share of permits to the emissions-intensive trade-exposed sector (discussed in Chapter 12) has been the subject of much public debate. It is not clear whether other regulatory measures in a range of spheres that have provided exemptions or weaker regulatory constraints for some parties have been subject to the same level of debate. The Government has taken a careful approach in designing the Scheme, a key benefit of which is that the Scheme cap will be transparently related to Australia's national emissions reduction targets.

The Scheme also reflects the Government's best practice regulation principles in seeking to minimise compliance and administrative costs for both business and Government (see Box 5.4).

## Box 5.4: Best practice regulation and the Scheme

The design of the Carbon Pollution Reduction Scheme reflects the Government's best practice regulation principles in seeking to minimise compliance costs for business. The scheme builds, where possible, on existing regulatory structures, providing certainty for participating entities. Where new regulation is required for the introduction of the Scheme, it has been designed to impose minimal administrative costs.

The Scheme regulatory will be amalgamated with the Greenhouse and energy Data compliance obligations for liable entities. The use of the Corporations Act 2001 to regulate permits and ensure the ongoing credibility of the Scheme, rather than the creation of new regulatory regime, will further minimise the administrative costs for both market participants and for Government.

The introduction of the Scheme provides a national approach to climate change. The Government will continue to engage with the States and territories to maximise the opportunities for streamlining obligations of the Scheme and state and territory programs.

Five-yearly strategic reviews will also ensure that the Scheme continues to operate effectively and efficiently and provide an opportunity to monitor, and potentially reduce, the administrative costs of the Scheme incurred by participants and the Government.
The Government considers that the Scheme is the best policy measure to deliver a reduction in emissions. The Scheme can reduce Australia's emissions in a flexible and cost-effective way. It can also support an effective global response (for example, by linking to the international market), while also allowing for efficient and effective measures to assist households and firms with the transition.

<sup>1</sup> Australian Government 'Australia's Low Pollution Future: The Economic of Climate Change Mitigation' Commonwealth of Australia 2008.

<sup>2</sup> Article 2 of the UNFCCC states: 'The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.'

# 6 Coverage

The coverage of the Scheme refers to the greenhouse gases and emissions sources for which permits will have to be surrendered, which entities will have to surrender them, and the activities and types of sequestration for which permits will be issued. The scope for offsets from emissions sources that are not included in the Scheme is also considered in this chapter.

The Scheme will have the broadest possible coverage. Broad coverage reduces the overall cost to the Australian economy of achieving emissions reductions by increasing opportunities for firms to access low-cost abatement. Broad coverage also ensures that competing firms and sectors operate within equivalent market rules.

The Scheme will cover around 75 per cent of Australia's emissions and involve mandatory obligations for around 1000 entities. The Government will be able to estimate the number of liable entities more accurately following receipt of data under the *National Greenhouse and Energy Reporting Act 2007*. Additional entities are also likely to volunteer to take on Scheme obligations. There are around 7.6 million registered businesses in Australia of which most will not have Scheme obligations.

This chapter considers the following issues:

- Section 6.1 discusses the accounting framework for greenhouse gases.
- Section 6.2 describes the greenhouse gases that will be covered by the Scheme.
- Section 6.3 describes the general approach to Scheme coverage.
- Section 6.4 deals with stationary energy.
- Section 6.5 covers the transport sector.
- Section 6.6 covers fossil fuels.
- Section 6.7 deals with carbon capture and storage.
- Section 6.8 covers industrial processes.
- Section 6.9 deals with fugitive emissions.
- Section 6.10 deals with waste.
- Section 6.11 covers synthetics greenhouse gas emissions.
- Section 6.12 deals with agriculture emissions.
- Section 6.13 covers reforestation.

- Section 6.14 deals with deforestation.
- Section 6.15 concludes with a discussion on offsets, including the potential for Indigenous land managers to participate in the Scheme.

# 6.1 Accounting framework

The international accounting framework under the Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol) specifies which emissions sources and sinks count towards Australia's Kyoto Protocol target and provides guidance on approaches to, and methodologies for, calculating national emissions inventories.

Parties to the Kyoto Protocol account for the following six greenhouse gases:

- carbon dioxide (CO<sub>2</sub>)
- methane (CH<sub>4</sub>)

- - --

- nitrous oxide (N<sub>2</sub>O)
- sulphur hexafluoride (SF<sub>6</sub>)
- hydrofluorocarbons (HFCs)
- perfluorocarbons (PFCs).<sup>1</sup>

The protocol recognises that the strength of the greenhouse effect—or global warming potential—of each gas is different (see Table 6.1). The most common greenhouse gas is carbon dioxide and by convention other greenhouse gases are converted to a carbon dioxide equivalent ( $CO_2$ -e), taking into account their internationally agreed global warming potentials.<sup>2</sup>

Table 6.1: Kyoto Protocol gases	—global warming potential
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Kyoto Protocol gases	Global warming potentials
Carbon dioxide (CO <sub>2</sub> )	1
Methane (CH <sub>4</sub> )	21
Nitrous oxide (N <sub>2</sub> O)	310
Sulphur hexafluoride (SF <sub>6</sub> )	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.

Parties to the Kyoto Protocol also account for seven categories of human-induced greenhouse gas emissions:

- *Stationary energy*: primarily carbon dioxide from combustion of fossil fuels for electricity generation; from energy production in the petroleum refining, manufacturing, construction and commercial industries; and for domestic heating
- *Transport*: primarily carbon dioxide from combustion of liquid fuels for road and rail transport, domestic aviation and shipping

- *Fugitive emissions*: primarily methane, carbon dioxide and nitrous oxide emitted during the production, processing, transport, storage and distribution of coal, oil and gas
- Industrial processes: primarily carbon dioxide from chemical reactions associated with manufacturing processes, mineral processing, and chemicals and metal production
- Agriculture: primarily methane and nitrous oxide from livestock and cropping
- *Waste*: primarily methane and nitrous oxide from solid waste sent to landfill, from the treatment of domestic, commercial and industrial waste water, and from 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 Protocol target
  - reforestation—primarily sequestration of carbon dioxide through conversion of land used for other purposes to forested land
  - deforestation-primarily carbon dioxide from conversion of forested land to alternative \_ land uses.

Australia's national greenhouse gas inventory is compiled in accordance with international accounting categories and rules.

In 2006, Australia's net greenhouse gas emissions using the Kyoto Protocol accounting provisions were 576.0 million tonnes of  $CO_2$ -e. The energy sector (stationary energy, transport and fugitive emissions) was the largest source of greenhouse gas emissions, contributing 69.6 per cent (400.9 million tonnes of CO<sub>2</sub>-e) of emissions (Figure 6.1). This proportion is less than in many countries, due to the relatively large contribution from the agriculture (15.6 per cent) and land use, land-use change and forestry (6.9 per cent) sectors to Australia's inventory. The industrial processes (4.9 per cent) and waste (2.9 per cent) sectors are relatively minor sources.<sup>3</sup>





Source: National Greenhouse Gas Inventory 2006, Department of Climate Change.

The key elements of the international accounting framework are relatively settled. Therefore, adopting internationally consistent accounting rules within the Scheme will entail few risks and will ensure that the Scheme meets the environmental objectives defined under the international framework.

However, there may be some changes to the international accounting rules under the next international climate change framework, particularly to the rules relating to land use, land-use change and agriculture. Chapter 7 sets out the process for changing Scheme accounting rules, including in response to changes to the international accounting framework.

# 6.2 Coverage of greenhouse gases

Human-induced climate change is caused by a range of greenhouse gases, of which carbon dioxide is the most significant. Different greenhouse gases are produced by different emissions sources and activities.

Emissions of all six Kyoto Protocol gases are counted towards Australia's international commitments.

#### **Green Paper position**

All greenhouse gases included under the Kyoto Protocol—carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons—would be covered from Scheme commencement.

Most stakeholders supported broad coverage of all greenhouse gases, although synthetic greenhouse gas importers had concerns about the coverage of sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons (see Section 6.11).

"All Kyoto Protocol gases should be covered where it is administratively efficient to do so." (Australian Institute of Petroleum, Submission 673)

The Government has decided to adopt the approach proposed in the Green Paper. This approach is consistent with current reporting obligations under the National Greenhouse and Energy Reporting System, and so will not add to implementation risks or to compliance costs. This approach will also ensure that the incentives created by the Scheme align with the environmental goal as defined in the international climate change framework.

#### Policy position 6.1

All greenhouse gases listed under the Kyoto Protocol—carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons—will be covered from Scheme commencement.

# 6.3 General approach to coverage of emissions sources

In the Green Paper, the Government noted that broad coverage would reduce the overall cost to the Australian economy of achieving emissions reductions by increasing opportunities for low-cost abatement. Importantly, broad coverage also ensures that competing firms and sectors operate within equivalent market rules.

The Government also indicated that alternative mitigation measures would be applied if a sector was likely to remain outside the Scheme for some time.

Stakeholders supported the principle of broad coverage:

"Xstrata supports the widest practical coverage from commencement of the Scheme." (Xstrata, Submission 593)

"ACF welcomes the broad coverage of emissions proposed in the Green Paper. ACF welcomes the proposed coverage of the six Kyoto gases and the proposed sectors; stationary energy, transport, fugitive emissions, industrial processes and waste." (Australian Conservation Foundation, Submission 809)

"AIGN supports an ETS that is comprehensive of gases, sectors and sinks." (Australian Industry Greenhouse Network, Submission 424)

"Many of the Government's preferred positions on a CPRS are supported by ACCI. This includes broad coverage [of] Australian industry and greenhouse gases in the CPRS." (Australian Chamber of Commerce and Industry, Submission 786)

Some stakeholders, however, opposed coverage of particular sources of emissions. Stakeholders with fugitive emissions argued that coverage of their emissions should be delayed pending development of more accurate direct estimation methodologies (see Section 6.9). Waste sector stakeholders, including local governments, argued that emissions from past waste streams (known as legacy emissions) should be excluded from the Scheme (see Section 6.10). Synthetic greenhouse gas stakeholders argued that these gases should be regulated rather than included in the Scheme (see Section 6.11).

Stakeholders across a range of industries noted that they do not currently have access to costeffective abatement options and argued for exclusion of their emissions until such options become available. The Government does not consider that the extent of known abatement possibilities should be a criterion for Scheme coverage. Inclusion in the Scheme ensures that emissions are appropriately recorded, enhancing environmental integrity, and maintains abatement incentives, including for the introduction of new technological processes.

The Government considers that emissions sources can be covered, provided that:

- Scheme obligations can be applied cost-effectively—compliance costs will be reduced if Scheme obligations apply to a relatively small number of large emitters
- emissions can be estimated in an unbiased manner—the Scheme will have environmental integrity only if emissions are estimated using unbiased, internationally recognised methodologies.

The use of unbiased estimation methodologies will ensure that price signals are applied consistently between firms within a given sector. While direct estimation is not a requirement for coverage, Scheme efficiency will increase if more precise measurement methodologies are applied. The accuracy of emissions estimates will also have consequences for the equity of the Scheme. If emissions estimates for some entities are consistently above their actual emissions, those entities will be at a relative disadvantage compared to entities with higher actual emissions.

Scheme coverage will create demand for abatement technologies and practices. This will provide incentives for the market to develop, commercialise and adopt cost-effective abatement options. Over time, this will bring forward new ways of producing goods and drive down the cost of those technologies.

If sources of emissions cannot be covered, the Government will, where practical, apply alternative mitigation measures. The purpose of such measures will be to ensure that firms with uncovered sources of emissions make an equivalent contribution to achieving Australia's national emissions reductions objectives and have incentives to undertake abatement.

Alternative mitigation measures could include regulatory requirements that entities meet certain emissions standards, or adopt low-emissions technologies or management practices. To ensure an equivalent contribution, alternative mitigation measures should be designed to deliver abatement up to a cost that is roughly the same as the carbon price under the Scheme. In practice, such equivalence would be difficult to achieve and the costs of implementing such requirements may vary greatly from business to business.

Offsets are another mechanism that could provide incentives for firms with uncovered sources to undertake additional abatement. Offsets assist entities within the Scheme to meet their emissions obligations more cheaply. They can provide an income stream for firms with uncovered sources of emissions, in contrast to the liabilities that arise for firms with covered emissions. This is discussed in Section 6.15.

Emissions thresholds are used to define which facilities will be included in the Scheme. In the Green Paper, the Government proposed that emissions thresholds should be set at a level that balances compliance costs against Scheme coverage; that is, high enough to exclude emitters that it would not be cost-effective to include, but low enough to capture most of the emissions from any given source.

#### **Green Paper position**

In general, the emissions threshold for direct obligations under the scheme would apply to entities with facilities which have direct emissions of 25 000 tonnes of carbon dioxide equivalent a year or more. Different thresholds may be required for the waste sector and synthetic greenhouse gases.

The Government must determine which emissions should be counted towards the threshold. For example, the threshold could be based on direct emissions from all sources, direct emissions from only one source, or on emissions from both direct (Scope 1) and indirect (Scope 2) sources such as electricity use. In determining the approach, the Government must take account of the liability that would arise under the Scheme. Under the National Greenhouse and Energy Reporting System, entities with facilities that emit 25 000 tonnes of  $CO_2$ -e a year or more from both direct and indirect sources are required to report their greenhouse gas emissions, energy consumption and energy production.



Submissions supported a general Scheme threshold of 25 000 tonnes of  $CO_2$ -e a year, although a number of stakeholders contacted the Department of Climate Change seeking clarification on which emissions sources would be counted towards the threshold, particularly whether indirect emissions from electricity use would be included. Submissions raised particular issues in relation to thresholds for emissions from waste landfill sites and synthetic greenhouse gases. Sections 6.10 and 6.11 discuss thresholds for these emissions sources.

The Government has decided that the direct emissions threshold for the Scheme will be based on direct (Scope 1) emissions only, reflecting the fact that entities will not be required to surrender permits for Scope 2 emissions (these are captured by applying Scheme obligations for Scope 1 emissions to other entities, particularly power generators). This threshold differs from that applied under the National Greenhouse and Energy Reporting System. Table 6.2 compares facility-level emissions thresholds under the National Greenhouse and Energy Reporting System and the Carbon Pollution Reduction Scheme.

#### Table 6.2: Facility thresholds

Carbon Pollution Reduction Scheme	National Greenhouse and Energy Reporting System
An entity has a facility with 25 000 tonnes or more of $CO_2$ -e a year of direct (Scope 1) emissions.	An entity has a facility with 25 000 tonnes or more of $CO_2$ -e a year of direct (Scope 1) and indirect (Scope 2) emissions.

While all direct emissions will count towards the facility-level threshold, entities may not be required to surrender permits for all their direct emissions in all circumstances. For example, emissions from the combustion of petroleum products will generally be covered upstream.

Scheme obligations will also apply to upstream fuel suppliers and certain other entities, many of which do not meet the general Scheme threshold or have no direct emissions, for example natural gas retailers. More detail on points of obligation for fossil fuels is at Section 6.6. Thresholds will apply differently to waste landfill facilities (see Section 6.10).

The Government will review thresholds as part of its strategic reviews of the Scheme. The Government is disposed to progressively lower thresholds to improve the efficiency of the Scheme and to avoid creating incentives to structure facilities solely to avoid Scheme obligations.

#### Policy position 6.2

In general, direct Scheme obligations will apply to entities with a facility that has direct (Scope 1) emissions of 25 000 tonnes of CO2-e a year or more.

The Government will review thresholds as part of its strategic reviews of the scheme.

# 6.4 Stationary energy

Stationary energy contributes around 50 per cent of Australia's emissions, and is Australia's largest and fastest growing source of emissions.<sup>4</sup> Emissions from this source are from the combustion of fossil fuels, mainly coal and gas, to produce energy for purposes other than transport. The largest emitters are electricity generators with most remaining emissions coming from on-site power generation within the manufacturing, construction and petroleum refining industries. Home heating, on-site diesel generation, and farm machinery also make a small contribution.

#### **Green Paper position**

Stationary energy emissions would be covered from scheme commencement by applying scheme obligations both to facilities with direct emissions of 25 000 tonnes or more of carbon dioxide equivalent a year and to suppliers of fuel to small energy users.

The Government did not receive submissions that opposed coverage of emissions from stationary energy.

The Government notes that there are site-specific methodologies to estimate stationary energy emissions.<sup>5</sup> Coverage of these emissions can be achieved cost-effectively by applying Scheme obligations to upstream suppliers of fossil fuels and to large fuel users. Points of obligation for fossil fuels are outlined in Section 6.6.

#### **Policy position 6.3**

Emissions from stationary energy will be covered from Scheme commencement.

# 6.5 Transport

Transport emissions account for around 14 per cent of Australia's emissions. Road transport contributes almost 90 per cent of transport emissions, with rail, domestic aviation and shipping contributing the remainder.<sup>6</sup>

Under international accounting rules, fuels used for international shipping voyages (known as international bunker fuels) are not counted in countries' national inventories. This includes fuels used on domestic legs of international voyages.

#### **Green Paper position**

Transport emissions would be covered from scheme commencement, with scheme obligations applied to upstream fuel suppliers.

The Government would work with the fuel supply industry to develop administrative arrangements to enable fuel that is exported, used for international transport, sequestered in plastics, and supplied to visiting defence forces and consular vehicles to be excluded from obligations under the scheme.

Transport sector stakeholders widely acknowledged the need to include transport in the Scheme and supported the proposal to apply Scheme obligations to upstream fuel suppliers.

"AAA considers... that under (the) emissions trading model being proposed for Australia, the road transport sector is best covered by the imposition of emission permit obligations on upstream petroleum refiners and importers rather than through carbon taxes.

AAA supports the cap and trade scheme being advocated by the Government and, since permits will be tradeable, we support the price of carbon being determined by the market." (Australian Automobile Association, Submission 787)

Transport emissions are the second fastest growing category of emissions.<sup>7</sup> Excluding these emissions from the Scheme for an extended period will increase the costs of meeting Australia's climate change objectives for other sectors. For example, excluding transport could lead to electricity and gas prices being higher than they otherwise would have been.

Including the transport sector in the Scheme will, other things being equal, lead to an increase in fuel prices. This will contribute to the development of new vehicle and fuel technologies,

as well as encouraging fuel users to reduce their demand for fuel, for example by changing driver behaviour, using alternative modes of transport, changing places of residence and sharing vehicles.

It is sometimes argued that transport should not be included in the Scheme because demand for fuel is relatively unresponsive to prices (that is, it has a low short-run price elasticity). Households have few alternatives to private car use. Car use is predetermined by where people live and work, and where children attend school. There are few easy opportunities to switch vehicles or fuel technologies. If this were the case, then it could be argued that little would be lost by excluding transport emissions from the Scheme.

However, studies have shown that while fuel users might not be particularly responsive to prices in the short term, they are more responsive in the longer term. It takes time for people to adjust. Sustained price changes will influence people's decisions about which cars to buy and where to live and work—Box 6.2 contains more detail.

Over time, a wide variety of abatement responses are likely in the transport sector. Modelling conducted by the Treasury, released in October 2008, suggests that the introduction of a carbon price is likely to reduce fuel use and the emissions intensity of transport by contributing to improved vehicle efficiency, and to changes in the fuel use mix, modes of transport and residential location.

Results of Treasury modelling (under the CPRS-5 scenario) indicate that the introduction of a carbon price has potential to induce significant reductions in transport emissions relative to a reference case, including by:

- reducing demand for passenger road transport by around 4.5 per cent by 2050 relative to the reference scenario
  - vehicle sharing increases, fewer trips are made, distances travelled are shorter and there
    is some substitution towards public transport
- reducing total road fuel consumption by around 20 per cent by 2050 compared to the reference scenario
  - fuel emissions intensity falls and there is lower demand for transport fuels
  - use of traditional petrol falls the most electric vehicles and hybrid electric cars make up 10 per cent of the transport sector in 2050.

Shifts are already being observed in Australia in response to recent periods of higher fuel prices. Fuel users are already beginning to adopt more efficient transport technologies, such as hybrid vehicles. New transport fuels are being developed and there is growing acceptance and use of these by motorists. Public transport use is increasing, resulting in unanticipated capacity constraints in some Australian cities. In 2007, fuel consumption in the United States fell in response to increasing global fuel prices, the first such decline in 30 years.

#### Box 6.2: Benefits of covering transport emissions

The Bureau of Infrastructure, Transport and Regional Economics has estimated that, in the short term, car fuel use in Australia declines by about 1.5 per cent in response to a 10 per cent increase in the petrol price, but that this decline increases to 4 per cent when longer-term responses are taken into account.

Australia, in contrast to European countries, has not had a period of elevated fuel prices for longer than seven years (in the late 1970s and early 1980s). It is possible that the long-run responsiveness to radically higher fuel prices could be even greater, given threshold effects on consumer choices and technological development. International studies have suggested that, at higher fuel prices, consumption declines by up to 7 per cent for every 10 per cent increase in fuel prices, once demand- and supply-side (technology) changes are taken into account.<sup>8</sup>

Long-term reductions are the result of changes in vehicle size, vehicle fuel efficiency, vehicle fuel type, technology, mode of transport (for example, road, rail or cycling), and residential location.

- In 2003, 30 per cent of Australian purchasers of passenger motor vehicles bought large vehicles; in 2007, 18 per cent. Consumers are also choosing more fuel-efficient vehicles within each size category. This has reduced new vehicle average fuel efficiency under standard test conditions from 9.7 L/100 km in 2003 to 9.0 L/100 km in 2007.
- Diesel vehicles, the most fuel-efficient conventional liquid fuel vehicles, increased their share of new vehicle sales from 5 per cent in 2005 to 9 per cent in 2007.
- Hybrid vehicles accounted for 0.2 per cent of sales in 2005, and 0.6 per cent in 2007.

In the Green Paper, the Government suggested that permits would not need to be surrendered for liquid fuels used by visiting international defence forces and in consular vehicles as these entities are exempt from paying excise. Further analysis has revealed that there is no legal requirement to exempt these fuels from the Scheme and netting these fuels out of the Scheme will add complexity. The Government has, therefore, decided that the Scheme will include these fuels.

The Government also noted in the Green Paper that liquid fuels used or consumed other than through combustion do not result in emissions to the atmosphere. The Government will not require permits to be surrendered where fuel use does not result in emissions of greenhouse gases to the atmosphere.

The Scheme will apply only to domestic emissions, as defined under the international accounting framework. Under international accounting rules, fuel combusted on the domestic section of international voyages is not counted towards national emissions.<sup>9</sup>

Rail and maritime industry stakeholders expressed concern about the definition of international bunker fuels. Some stakeholders argued that competitive distortions will arise if the Scheme covers domestic maritime fuels but excludes fuels used by international ships carrying domestic cargo. Similarly, rail industry stakeholders argued that long distance rail,

particularly between Perth and Melbourne, would be at a competitive disadvantage unless an equivalent charge is applied to international ships carrying domestic cargo.

The Government agrees that this issue needs to be addressed and will put in place measures to ensure all shipping that carries domestic cargo will face an equivalent carbon cost.

#### Policy position 6.4

Transport emissions will be covered from Scheme commencement.

Scheme obligations will be applied to upstream suppliers of transport fuels.

## 6.5.1 Transitional assistance

In the Green Paper, the Government recognised that households, small businesses and businesses in some rural and regional industries will need time to adjust to the Scheme. The Government therefore committed to cut excise and excise-equivalent customs duty (fuel tax) on a cent-for-cent basis to offset the initial price impact on transport fuels associated with the introduction of the Scheme. Further details on the fuel tax arrangements and transitional assistance is outlined in Chapter 17.

A number of industry groups, upstream fuel suppliers, firms and state governments argued that the proposed transitional arrangements will defer the price incentive to reduce transport emissions.

"The CPRS as proposed in the Government's Green Paper will do very little in the near term to cut the annual 115 million tonnes of carbon dioxide emissions from Australia's use of petroleum products, because the carbon cost at the pump will be offset "cent for cent" by a reduction in excise." (Caltex Australia Limited, Submission 734)

"The Victorian Government notes that the reductions in the fuel excise will soften the impacts of the CPRS on the transport sector, but acknowledges that the Commonwealth Government is seeking to provide time for consumers to change their vehicle stock and transport choices..." (Victorian Government, Submission 780)

Including transport fuels in the Scheme will provide a strong signal that fuel users will need to factor carbon costs into decisions that will affect their long term consumption of transport fuels.

Including transport emissions in the Scheme will also impact on the number of pollution permits available to other sectors of the economy. If transport emissions continue to grow strongly, other sectors will need to undertake additional abatement because total emissions will be limited by the Scheme cap or the volume of imported international units will need to rise.

The transitional arrangements outlined in the Green Paper do not apply to transport fuels used by the aviation, rail and maritime industries.

Submissions from the rail industry argued that transitional arrangements should apply to their fuel so that rail costs do not increase relative road freight charges, which would be contrary to the Scheme's objectives as rail is less emissions intensive than road use.

"Intermodal rail carrying contestable freight, should be granted the same offset of emissions costs which are to be granted to heavy road transport." (Australasian Railway Association, Submission 760)

Transitional arrangements are designed to provide households and businesses time to adjust to the Scheme and is targeted at those sources of transport costs that have the most marked and immediate impact. Over the longer term less intensive modes of transport will gain a competitive advantage as a result of the Scheme. The Government is working with the rail industry to make rail network improvements need to enhance its competitiveness on a greater number of routes.

#### **Policy position 6.5**

Transitional assistance will be provided to help households and businesses to adjust to the impact of the Scheme. See Chapter 17 for detail on transitional arrangements as they apply to transport fuels.

# 6.6 Fossil fuels

The objective of the arrangements outlined below is to efficiently apply Scheme obligations to emissions from domestic combustion of fossil fuels for transport and stationary energy.

In the Green Paper, the Government proposed that Scheme obligations be applied to upstream suppliers of fossil fuels to efficiently capture these diverse sources of emissions. For each type of fossil fuel, the Green Paper listed a number of upstream suppliers. Applying Scheme obligations to entities at appropriate points 'upstream' from final use ensures that Scheme obligations can be accurately calculated and reduces compliance costs attributed to different fuel users. The Government also proposed to apply Scheme obligations to large users of some fossil fuels.

A mechanism is therefore required to enable upstream suppliers to separately identify and account for fuels sold to other fuel suppliers and to large emitters, and to ensure that there is no double counting of emissions. This is known as netting out.

## 6.6.1 Netting-out arrangements

In the Green Paper, the Government indicated that it would consult with industry on netting-out arrangements. The Government noted that netting-out arrangements need to avoid double-counting of emissions and gaps in coverage, and should not impose unreasonable compliance costs.

The Government will establish an administrative mechanism—an Obligation Transfer Number (OTN) to enable Scheme obligations to be transferred where relevant, at the same time the fuel is supplied, down the supply chain.<sup>10</sup> Entities will report fuels supplied or purchased under an OTN. This will allow fuel to be tracked as it moves from the top of the supply chain to direct emitters, preventing double counting and avoiding gaps in coverage.

In general, Scheme obligations can be managed by entities at the top of the fuel supply chain where there is a low divergence in emissions factors for different users, or where downstream fuel use information is readily available.

However, entities at the top of the supply chain may not have downstream fuel use information and, consequently, may not be able to accurately or easily calculate permit liabilities where fuel is sequestered rather than emitted, not fully combusted or not combusted in Australia. Where it is practical and necessary to enable accurate estimation of fuel use emissions, the Government will allow downstream entities to use an OTN when purchasing fuel and to directly manage any associated permit liabilities.

A voluntary approach to the transfer of Scheme obligations is possible where entities have an incentive to take on Scheme obligations to ensure that they do not bear higher carbon costs than necessary. A voluntary approach also allows entities to determine for themselves whether or not it is cost effective to directly manage their Scheme obligations. Box 6.3 lists entities that will be allowed, but not required, to purchase fuel under an OTN.

#### Box 6.3: Entities that may use an Obligation Transfer Number

The Government will allow entities that use fuel in the following circumstances to use an Obligation Transfer Number and to directly manage their permit liabilities, if any:

- entities that use fossil fuels, including synthetic fuels, as feedstock in a chemical transformation or consume fossil fuel other than by combustion
- entities undertaking solid fuel transformation (making coal char, coke, briquettes and by-products)
- upstream suppliers of natural gas, liquefied natural gas, compressed natural gas, ethane, coal seam gas, underground coal gas and town gas that acquire gaseous fossil fuels from another entity to manufacture those gases
- intermediate suppliers of fossil fuels (including coal washeries and distributors) and synthetic greenhouse gases
- entities using fuel for international voyages or for other purposes that do not result in domestic emissions
- large users of petroleum liquid fuels.

In the Green Paper, the Government noted that imposing Scheme obligations directly on emitters creates the clearest possible incentives for these entities to undertake abatement. These entities will be required to use an obligation transfer number when purchasing fuel and to directly manage their permit liabilities. The Government therefore proposed that Scheme obligations for emissions from combustion of fossil fuels be applied to large emitters, which were defined as entities with a facility that emits 25 000 tonnes of  $CO_2$ -e a year or more. However, some large emitters may only use small or moderate amounts of fuel (for example, industrial process emissions may form the majority of a facility's emissions). As it may not be practical or cost effective for upstream suppliers to net out small amounts of fossil fuels, the Government will apply Scheme obligations to large fuel users rather than large emitters as

proposed in the Green Paper (by requiring them to use an OTN when purchasing fuel). Large fuel users will be defined as entities with a facility that emits 25 000 tonnes of  $CO_2$ -e a year or more from combustion of a single fuel.

Stakeholders have expressed the view that, for particular fuels, Scheme obligations should apply consistently to entities lower down the supply chain to ensure that competing firms operate within equivalent market rules. The Government will therefore require certain intermediate suppliers use an obligation transfer number when purchasing fuel and to directly manage Scheme obligations associated with this fuel. Entities required to use an OTN are listed in Box 6.4.

#### Box 6.4: Entities that are required to use an obligation transfer number

The Government will require the following entities to use an obligation transfer number when purchasing fuel and to directly manage Scheme obligations associated with this fuel:

- large users of fossil fuels other than petroleum liquid fuels
- retailers of natural gas and other pipeline gases
- marketers of liquefied petroleum gas.

Detailed netting out arrangements, including the operation of the obligation transfer number, were not set out in the Green Paper and stakeholders have not had the opportunity to examine these and to comment on this aspect of the Scheme. Box 6.5 describes how netting out would work in general terms. However, the Government expects to refine the administration of netting out arrangements, including the need for transitional arrangements, in consultation with stakeholders, following release of exposure draft legislation.

#### Box 6.5: How would netting out work

Entities would apply to the regulator for an Obligation Transfer Number (OTN).

The entity would quote its OTN to the upstream supplier when it purchases fuel.

The upstream supplier would report volumes of fuel supplied to entities that have quoted their OTN but would be liable only for emissions from combustion of fuels supplied to entities that have not quoted an OTN (and any direct, production emissions).

Entities would report volumes of fuel supplied to them under the OTN and directly manage permit liabilities associated with the use of this fuel (if any), except if the fuel is supplied to another OTN holder.

OTNs could be used for any fuel that is purchased by the entity; that is, the entity could use its number for fuel used across its operations, not just in facilities that emit more than 25 000 tonnes of  $CO_2$ -e a year.<sup>11</sup> This will simplify billing and netting-out arrangements as entities that purchase fuel for a number of facilities of various sizes will not be required to separately manage fuel used in their large and small facilities.

The OTN mechanism will also be used to transfer Scheme obligations for synthetic greenhouse gases from upstream to intermediate gas suppliers and certain large gas users—see Section 6.11.

#### Policy position 6.6

An administrative mechanism—the Obligation Transfer Number—will be established under the Scheme to enable Scheme obligations to be transferred with fuel supplies, from upstream fuel and synthetic greenhouse gas suppliers to downstream entities in some circumstances, and to enable upstream suppliers to net out fuels and gases supplied to downstream entities.

## 6.6.2 Petroleum products

Petroleum products are mainly used as transport fuels but some are also used to produce stationary energy, for example in diesel generators. The most common fuel products are motor gasoline (petrol), aviation gasoline, aviation turbine fuel, kerosene, heating oil, automotive diesel oil, and fuel oil. Some petroleum products are not combusted and are used as a feedstock for chemical and plastics.

#### **Green Paper position**

Scheme obligations for emissions from fuel combustion would be applied to all fuel excise and customs duty remitters for all liquid fuels currently subject to fuel excise and excise-equivalent customs duty, with thresholds to exclude smaller customs duty remitters to be determined.

Upstream fuel suppliers supported the Government's proposed approach to coverage.

An upstream point of acquittal for liquid fuels is the most administratively efficient option, with the point of acquittal for all liquid fuels being at the point at which fuel excise is imposed on fuels entering the Australian market. (Australian Institute of Petroleum, Submission 673, p. 5)

BP supports the Green Paper position that the point of acquittal for all liquid fuels should be at the point at which fuel excise is liable to be remitted on all liquid fuels entering the Australian fuels market. (BP Australia, Submission 355, p. 5)

Fuel tax arrangements provide robust and well-tested administrative systems to ensure that fuel tax is paid, that it is paid by the right entities, that it is paid once, and that the correct amount is paid. These arrangements offer a unique mechanism for tracking liquid fuel. Compliance costs can be minimised by having fuel suppliers report fuel tax data to the Scheme regulator.

Stakeholders did not support the use of thresholds to exclude small suppliers of liquid fuels from the Scheme as this could provide opportunities for avoiding Scheme obligations and create market distortions. To ensure equivalent treatment of all upstream liquid fuel suppliers and to ensure comprehensive coverage of emissions from liquid fuels, the Government has decided that a threshold will not apply to exclude small upstream liquid fuel suppliers from the Scheme.

In the Green Paper, the Government noted that upstream fuel suppliers will require time to establish netting-out arrangements and that netting-out may be difficult in some circumstances. The Government proposed to consider whether large users of petroleum products would be able to directly manage Scheme obligations after the first 12 months of the Scheme.

Stakeholders confirmed that netting-out arrangements will take time to put in place.

Given the time required for AIP member companies to design, modify and test appropriate accounting and data tracking systems once detailed regulation is known with sufficient certainty, it is not possible for 'net out' arrangements to be in place from the start of the CPRS in mid-2010. (Australian Institute of Petroleum, Submission 673, p. 24)

Caltex recognises there is a variety of accounting systems in the petroleum industry and system modifications will vary in difficulty between companies. (Caltex Australia Limited, Submission 734, p. 30)

The Government recognises that supply chains for petroleum products are very complex and that transitional arrangements may be required for netting out, particularly where only small amounts of fuel are involved and where there is no direct relationship between the upstream supplier and the end user. For these reasons, the Government will not require but will allow large users of petroleum products to use an obligation transfer number when purchasing fuel.



#### Figure 6.2: Netting out petroleum products

#### LEGEND

First supplier liable under the Scheme	
Transfer of Scheme obligations – supply excludes carbon price	Holder of an obligation transfer number – takes on Scheme obligations
Scheme obligations – supply includes carbon price	Small users – no Scheme obligations

Petroleum products can be used as a feedstock for chemical and plastic products. This use of fuel does not result in emissions of greenhouse gases to the atmosphere. Further, some petroleum products bought in Australia will be used for international voyages and will not result in domestic emissions. Upstream fuel suppliers will not have downstream fuel use information and can not easily calculate permit liabilities for fuel users in these circumstances. The Government will therefore allow entities that use petroleum products in these circumstances to use an OTN when purchasing this fuel and to directly manage their permit liabilities, if any.

#### Policy position 6.7

Scheme obligations for emissions from the domestic combustion of petroleum products will apply to upstream suppliers of liquid fuels. Scheme obligations will be administered on the same basis as fuel tax arrangements.

Certain users and suppliers of petroleum products may use an OTN to purchase fuel and directly manage any associated permit liabilities (see Section 6.6.1).

### 6.6.3 Liquefied petroleum gas

Liquefied petroleum gas (LPG)—liquefied propane and butane—is used to produce autogas for transport and cylinder gas used for household heating and cooking. Autogas contains different proportions of propane and butane from cylinder gas and has different emissions as a consequence. LPG is also used as a petrochemical feedstock and a propellant for aerosol sprays, neither of which involve combustion and therefore do not result in emissions of greenhouse gases to the atmosphere.

In the Green Paper, the Government proposed to apply Scheme obligations to entities that first supply LPG for use in the domestic market (importers and producers) and to intermediate suppliers of LPG (marketers and distributors).

#### **Green Paper position**

Scheme obligations for emissions from liquefied petroleum gas would be applied to producers, marketers, distributors and importers of liquefied petroleum gas supplied to energy users.

Stakeholders indicated that the primary point of obligation should be the marketers of LPG, at the point of sale to downstream customers or retailers.

To ensure that coverage is as close as possible to the point of end-use, and that costs and pass-through can be most efficiently managed, LPGA recommends that the primary point of obligation for LPG is by marketers. (Australian Liquefied Petroleum Gas Association, Submission 773, p. 6)

To ensure comprehensive coverage of LPG emissions, Scheme obligations need to be applied to fuel suppliers at the top of the supply chain. However, these entities do not have information about downstream fuel use and could not easily net out fuel supplied to large fuel users. The Government will therefore require LPG marketers to use an OTN when purchasing fuel and to manage Scheme obligations (see Section 6.6.1). This mechanism will result in the majority of permit liabilities being transferred to LPG marketers, as stakeholders suggested.

In some instances, permit liabilities will be transferred from marketers to large users of LPG, because large fuel users will be required to use an OTN when purchasing fuel.



Transfer of Scheme obligations – supply excludes carbon price	Holder of an obligation transfer number – takes on Scheme obligations
Scheme obligations – supply includes carbon price	Small users – no Scheme obligations

A small number of petrochemical companies use LPG as a feedstock for plastic resins. Upstream fuel suppliers will not have downstream fuel use information and can not easily calculate permit liabilities in these circumstances. The Government will therefore allow entities that sequester LPG to use an OTN when purchasing fuel and to directly manage their permit liabilities, if any.

#### **Policy position 6.8**

Scheme obligations for emissions from domestic combustion of LPG will apply to entities that first supply LPG for use in the domestic market.

Certain users and suppliers of LPG may use an OTN to purchase fuel and directly manage any associated permit liabilities (see Section 6.6.1). Note that LPG marketers will be required to use an OTN and that Scheme obligations with transfer, with LPG supplies, to these entities.

## 6.6.4 Synthetic fuels

In the Green Paper, the Government noted that synthetic fuels have yet to be developed in Australia but would be supplied and administered on the same basis as other liquid fuels. The Government therefore proposed that, once available, synthetic fuels would be covered in the same way as other liquid fuels.

#### **Green Paper position**

Scheme obligations for emissions from synthetic liquid fuels would be applied to fuel excise and customs duty remitters.

One stakeholder noted that underground coal gasification technology is currently being developed in Australia and may soon result in the introduction of new gaseous and liquid fuels to the Australian market. Underground coal gasification involves gasification of coal in the seam at depth, producing syngas plus methane and carbon dioxide. This stakeholder sought clarification on the application of Scheme obligations to emissions associated with this fuel.

Syngas and other synthetic fuels can be used for transport, stationary energy or as a feedstock for chemicals. Scheme obligations will apply to upstream fuel suppliers; that is, to fuel tax remitters (for synthetic fuels used for transport) and manufacturers or importers of synthetic fuels (where synthetic fuels are combusted for energy).

In addition, large users of syngas will be required to use an OTN and to directly manage permit liabilities. Other users of synthetic fuels may volunteer to manage Scheme obligations for the use of this fuel (see Section 6.6.1).

Synthetic fuels may be emissions intensive to produce: these industrial process emissions will also be covered (see Section 6.8).

#### Policy position 6.9

Scheme obligations for emissions from domestic combustion of synthetic fuels for stationary energy will apply to upstream fuel suppliers.

Scheme obligations for domestic combustion of synthetic fuels for transport will apply to upstream fuel suppliers and will be administered on the same basis as fuel tax arrangements.

Certain users and suppliers of synthetic fuels may use an OTN to purchase fuel and directly manage any associated permit liabilities (see Section 6.6.1).

## 6.6.5 Products containing fossil fuels

Stationary energy is sometimes generated from combustion of recycled materials that contain fossil fuels, such as car tyres, bitumen and petroleum tar, or from combustion of gases produced in coke ovens or blast furnaces. The Government did not consider emissions from combustion of products containing fossil fuels in the Green Paper. These emissions are counted in Australia's national inventory and will be reported under the *National Greenhouse and Energy Reporting Act 2007*.

The Government will include emissions from the combustion of products containing fossil fuels in the Scheme from commencement. This will ensure that Scheme obligations apply consistently across all fuel sources and that there are incentives to reduce these emissions.

There are no practical upstream points of obligation for emissions from the combustion of these products. The Government will, therefore, apply Scheme obligations directly to entities that combust these products for energy; that is, to entities with a facility that has direct (Scope 1) emissions of 25 000 tonnes of  $CO_2$ -e a year or more.

#### Policy position 6.10

Scheme obligations for emissions from domestic combustion of products containing fossil fuels will be applied to entities with a facility that has direct (Scope 1) emissions of 25 000 tonnes or more of  $CO_2$ -e a year or more from all sources.

## 6.6.6 Natural gas and other gaseous fossil fuels

Natural gas and other gaseous fuels have a range of industrial, commercial and domestic applications, including electricity generation, and as a feedstock for chemical and plastic products.

Liquefied natural gas (LNG) produced in Australia is mostly exported and current domestic consumption is low. LNG can be used directly as a transport fuel but is generally re-gasified and distributed as pipeline natural gas. Where LNG is re-gasified and distributed via natural gas pipelines, Scheme obligations could be applied to the relevant liable entities for natural gas.

Compressed natural gas (CNG) is produced from natural gas supplies. Unlike LPG and LNG, most CNG is produced in major cities from natural gas networks, rather than at gas processing plants.

#### **Green Paper position**

Scheme obligations for emissions from natural gas combustion would be applied to entities with facilities that have direct emissions of 25 000 tonnes or more of carbon dioxide equivalent a year, and to natural gas retailers for emissions from gas supplied to small emitters, or to gas producers where they supply directly to small emitters.

Scheme obligations for emissions from combustion of liquefied natural gas and compressed natural gas would be applied to producers of those fuels.

Stakeholders generally supported the Government's proposed approach to coverage of natural gas, including compressed natural gas.

APPEA welcomes preferred position 2.14 as consistent with the views expressed by APPEA during the consultation process leading up to the release of the Green Paper. (Australian Petroleum Production and Exploration Association, Submission 834, p. 21)

Chevron supports the proposals presented in the Green Paper in relation to emissions from domestic gas use. (Chevron Australia, Submission 716, p. 26)

However, gas retailers such as Simply Energy and Energy Australia proposed that Scheme obligations be applied at the top of the supply chain, to gas producers, rather than to retailers.

Placing the liability on natural gas retailers for small customer emissions would be administratively complex requiring retailers (in particular second tier and non-vertically integrated retailers that would otherwise not have a liability under the Scheme) to establish complicated and costly business systems and processes to reconcile the required information. It also adds a significant barrier to competition in the gas retail market and is inconsistent with the treatment of other energy sources such as liquid fuels and electricity. (Simply Energy, Submission 377, p. 2)

We believe that the point of liability for natural gas supply should be upstream at the gas producer or wholesaler rather than at the retailer. This would lower administrative costs and be consistent with the proposed treatment of liquid fuels in the transport sector. (Energy Australia, Submission 339, p. 1)

To ensure comprehensive coverage of gas emissions, the Government has decided to apply Scheme obligations to entities that first supply gas for use in the domestic market. However, recognising that natural gas retailers have the customer billing information which is necessary to enable fuel supplied to large gas users to be netted out, the Government will require natural gas retailers to use an OTN and to manage Scheme obligations. Scheme obligations will therefore transfer with fuel supplies from entities at the top of the supply chain to natural gas retailers. The Government recognises that natural gas retailers will incur Scheme compliance costs as a result but notes that these are likely to be passed through to consumers in most circumstances.





Stakeholders from the plastics and chemical sector noted that companies often use gas both for energy and as feedstock for their products. Natural gas used as feedstock is sequestered rather than combusted so does not result in emissions.

In the Green Paper, the Government proposed that permit liabilities not apply to petroleum products that are sequestered in products. A similar approach should apply to natural gas used as feedstock.

Natural gas retailers will not have sufficient fuel use information to easily calculate Scheme obligations where gas is not fully combusted. The Government will therefore allow any entity that sequesters natural gas to use an OTN to purchase this fuel and to directly manage their permit liabilities, if any.

When compressed natural gas is used in vehicles it produces fewer emissions than when natural gas is directly combusted. Natural gas retailers may not have sufficient fuel use information to enable them to accurately estimate permit liabilities for these fuel users. The Government will therefore allow entities that compress natural gas to produce CNG to use an OTN to purchase this fuel and to directly manage their permit liabilities.

The Government will also require large gas users to use an OTN to purchase fuel and to directly manage their permit liabilities (see Section 6.6.1).

#### Policy position 6.11

Scheme obligations for emissions from domestic combustion of natural gas and other gaseous fuels will apply to entities that first supply these gases for use in the domestic market.

Certain suppliers and users of natural gas may use an OTN when purchasing fuel and directly manage permit liabilities. Note that natural gas retailers will be required to use an OTN and that Scheme obligations will transfer, with natural gas supplies, to these entities.

#### 6.6.7 Black and brown coal

Australia uses black and brown coal, with power stations and large manufacturing facilities being the major users. Black and brown coal is also used in industrial processes such as the production of iron and steel. This often involves transformation of coal into coke (black coal) or char (brown coal). Some coal is used in small boilers, small commercial settings (brown coal briquettes), and in household barbecues (coal-based char).

#### **Green Paper position**

Scheme obligations for emissions from black coal combustion would be applied:

- to facilities with direct emissions of 25 000 tonnes of carbon dioxide equivalent a year or more
- to all coal mines, distributors, washeries, and producers of coke and coal by-products for emissions from small emitters.

Scheme obligations for emissions from brown coal combustion would be applied:

- to facilities with direct emissions of 25 000 tonnes of carbon dioxide equivalent a year or more
- on manufacturers of brown coal briquettes and other brown coal by-products for emissions from small emitters.

Stakeholders broadly supported these proposals though a number sought clarification on thresholds and netting out arrangements.

The Government will apply Scheme obligations to entities that first supply coal for use in the domestic market, to ensure comprehensive coverage of emissions.

The use of char, briquettes and coke produces lower emissions than the direct combustion of coal. Upstream coal suppliers will not have sufficient fuel use information to enable them to easily calculate permit liabilities for these users. The Government will therefore allow entities that convert coal into these products to use an OTN when purchasing coal and to directly manage permit liabilities associated with this fuel.



The Government will also require large users of coal and coal products, such as electricity generators, to use an OTN when purchasing fuel and to directly manage their permit liabilities (see Section 6.6.1). The Government expects that most permit liabilities for emissions from coal combustion will be directly managed by large coal users.

#### Policy position 6.12

The Government will apply Scheme obligations to entities that first supply coal and coal by-products for use in the domestic market.

Certain suppliers and users of coal may use an OTN to purchase fuel and directly manage any associated permit liabilities (see Section 6.6.1).

# 6.7 Carbon capture and storage

Carbon capture and storage (CCS) is a developing technology to capture, transport and store emissions from gas production, electricity generation and other emissions-intensive industrial processes, such as ammonia production and cement manufacture. These emissions would be transported by pipeline or other methods and stored underground, for example in existing geological structures that have an impermeable seal. CCS facilities can be operated by the owner of the manufacturing plant or power station (the 'originating entity'). Alternatively, the facilities can be owned by a third party offering CCS services. Another alternative is for the carbon capture facility to be operated by the originating entity and the storage component to be operated by a third party offering CCS services.

In November 2008, the Commonwealth Parliament passed legislation which amends the *Offshore Petroleum Act 2006* to create a regulatory regime for CCS activities in Commonwealth offshore areas.

In the Green Paper, the Government proposed that carbon dioxide transferred to CCS facilities would reduce the originating entity's emissions and hence their permit liability.

#### **Green Paper position**

Carbon that is transferred to carbon capture and storage (CCS) facilities would be netted out of the originating entity's gross emissions. Scheme obligations for fugitive emissions—from transport of the carbon and from the CCS facility—would be imposed on the operator of the CCS facility.

CCS provider Schlumberger Carbon Services opposed this approach, arguing strongly for permits to be issued to CCS providers:

The nature of CCS means that a CCS operator is unlikely to be operating in a competitive market for its services. It is likely to be highly dependent on one or a few source entities to provide the emissions it needs for its operation and viability. On the other hand, source entities will have the option of buying their required permits on the open market which potentially could include international access. In economic terms, the source entity would be a monopoly buyer (a monopolist) in dealing with the CCS operator who is potentially a captive source of abatement services.

This market structure means that considerable risk is borne by the CCS operator while considerable market power is in the hands of the source entities in their dealings with the CCS operator. There will be an incentive for a source entity to force down the sequestration fee paid to the CCS operator by threatening to access permits on the open market.

This imbalance of market power and risk exposure is a fundamental concern in the development of CCS and needs to be recognised in the way CCS is dealt with in an emissions trading scheme. (Submission 227, pp. 5–6)

The Government recognises that CCS investment will require strong and lasting contractual agreements between the CCS provider and originating entities. The treatment of CCS under the Scheme will have a marginal impact on negotiations of such contracts and the likelihood of investment in CCS in Australia. The treatment of CCS proposed in the Green Paper is consistent with the treatment of other abatement activities and emissions reporting under the National Greenhouse and Energy Reporting System. It also involves fewer compliance costs than issuing permits to the CCS operator.

#### Policy position 6.13

Carbon that is transferred to carbon capture and storage (CCS) facilities will not be counted towards the originating entity's gross emissions.

Scheme obligations for fugitive emissions from carbon capture, transport and storage activities will be imposed on the relevant CCS facility.

## 6.7.1 Biofuels and biomass

Most biofuels are alternative transport fuels derived from renewable sources. The two main biofuels available in the Australian market are ethanol and biodiesel. Biofuels are used mainly as extenders for petrol and diesel. Fuel ethanol is produced from sugars and starches and must be dehydrated to reduce the water content to acceptable levels for fuel use. Biodiesel is made by chemically combining vegetable oil or animal fat with an alcohol such as methanol.

Wood waste is the main source of biomass used for stationary energy, although components of municipal landfill waste and agricultural wastes are also used.

Under current international accounting rules for energy, carbon dioxide emissions from combustion of biofuels and biomass are not included in national totals (they are 'zero rated') but reported for information purposes because these emissions are equivalent to the carbon sequestered through growth of feedstocks.<sup>12</sup> Biomass from peat, however, is treated as a fossil fuel because it takes a long time to regenerate after harvest.

Combustion of biofuel and biomass also releases very small amounts of non-CO<sub>2</sub> gases. While those gases comprise less than 1 per cent of combustion emissions, international accounting rules require that they be included in national inventories.

#### **Green Paper position**

Scheme obligations would not apply to emissions from combustion of biofuels and biomass for energy; they would receive a 'zero rating'.

Stakeholders generally supported the Government's proposed approach.

The Government has considered how the life-cycle emissions from the domestic production of biofuels would be addressed under the Scheme.

In Australia energy use contributes the great majority of life-cycle emissions associated with most biofuels; agriculture emissions (primarily from fertiliser used to grow feedstock) also contribute. Some biofuels have very high life-cycle emissions because distillation and other production processes are very energy-intensive and most energy is produced from fossil fuels. While agriculture emissions will not be covered before 2015, energy emissions will be covered from Scheme commencement. Noting that a carbon price will apply to the majority of life-cycle emissions associated with most biofuels, the Government has decided not to apply Scheme obligations to emissions from combustion of biofuels.

Biofuels may be imported. The life-cycle emissions of imported biofuels are unlikely to be addressed, because most countries that produce biofuels do not currently have emissions targets. While the Scheme does not include agriculture emissions, and transitional arrangements apply to emissions from fuel use, the domestic biofuels industry is unlikely to face significant competitive pressures from imported biofuels.

#### Policy position 6.14

Scheme obligations will not apply to emissions from combustion of biofuels and biomass for energy, including  $CO_2$ -e emissions from combustion of methane from waste landfill facilities; they will receive a 'zero rating'.

## 6.8 Industrial process emissions

Industrial process emissions account for around 5 per cent of Australia's emissions.<sup>13</sup> These emissions are from chemical reactions (other than fuel combustion) and include synthetic greenhouse gases, which are dealt with separately in Section 6.11. The largest individual sources of industrial process emissions are iron and steel making, cement and lime making and aluminium smelting.

#### **Green Paper position**

Emissions from industrial processes would be covered from scheme commencement by applying scheme obligations to facilities with direct emissions of 25 000 tonnes or more of carbon dioxide equivalent a year.

Stakeholders supported the Government's proposed approach to coverage.

"Boral supports the implementation of an Emissions Trading scheme (ETS) or a Carbon Pollution Reduction Scheme ... The present 'default' position for direct emissions from a site to be above 25,000 tonnes of direct  $CO_2$ -e emissions to be considered a point of obligation appears reasonable." (Boral, Submission 595)

BOSMA recognises the role of the Australian iron and steel industry, along with other sectors of the Australian economy, and the global industry, in transitioning to a low emissions economy in a sustainable and economically responsible way. (Bureau of Steel Manufacturers of Australia, Submission 408)

The Government notes that most of these emissions are emitted by large facilities. The Scheme's direct emissions threshold will be used to determine which entities will have Scheme obligations.

#### Policy position 6.15

Industrial process emissions will be covered from Scheme commencement.

Scheme obligations for industrial process emissions will apply to entities with a facility that has direct (Scope 1) emissions of 25 000 tonnes CO2-e a year or more.

# 6.9 Fugitive emissions

Fugitive emissions account for around 6 per cent of Australia's emissions.<sup>14</sup> Fugitive emissions are released in the course of oil and gas extraction and processing; through leaks and controlled releases from natural gas pipelines; and as waste methane from open-cut and underground black coal mines.

#### **Green Paper position**

Fugitive emissions would be covered from scheme commencement by applying scheme obligations to facilities with direct emissions of 25 000 tonnes or more of carbon dioxide equivalent a year.

## 6.9.1 Coal fugitive emissions

In the Green Paper, the Government proposed that fugitive emissions from underground coal mines could be covered using site-specific emissions estimation methodologies, while fugitive emissions from open-cut coal mines could be covered using default methodologies, until more accurate emissions estimation methodologies are available.<sup>15</sup> The Government also noted the industry's significant efforts to develop more accurate methodologies.

Coal industry stakeholders argued that coverage of fugitive emissions from coal mines should be delayed until emissions from open-cut coal mines can be estimated more accurately.

"To address potential competitiveness and economic neutrality issues, underground and open cut coal mine fugitive emissions [should] be included in the scheme from the same date and only after technical methodological issues regarding open cut emission measurement have been resolved." (Australian Coal Association, Submission 530)

Shortly before release of the Green Paper, a provision for site-specific estimation methods was adopted under the *National Greenhouse and Energy Reporting (Measurement) Determination 2008.* Operators of open-cut coal mines can now choose between two emissions estimation methods: an internationally approved default emissions factor approach and a site-specific, direct estimation methodology. Coal mines whose emissions are lower than the default may benefit from the use of the site-specific, direct estimation method, although this method is more costly to implement. The Government will continue to work closely with the coal industry to elaborate on emission estimation methods. Chapter 7 describes in more detail the methodologies available for estimating fugitive emissions from open cut and underground coal mines.

Delaying coverage would also increase the costs imposed on other sectors of meeting Australia's climate change objectives.

For these reasons, the Government does not consider that there are grounds for delaying coverage of fugitive emissions from coal mines.

Fugitive emissions occur under certain conditions following closure of underground coal mines. In the Green Paper, the Government noted that further analysis and consultation would be required to identify an appropriate treatment of decommissioned mine sites. Stakeholders did not comment on this issue.

Fugitive emissions from decommissioned underground mine sites can be estimated using either an emissions-factor approach or site-specific methods. However, state authorities typically require ventilation shafts and mine shafts to be sealed shortly after mine closure, which makes direct measurement more difficult.

After decommissioning, very few Australian underground coal mines would exceed the threshold of 25 000 tonnes of  $CO_2$ -e a year. After closure, the rate of fugitive emissions from underground coal mines declines rapidly. Decommissioned mines that initially exceed the threshold would fall below the threshold within a few years of closure. For these reasons, the Government will not apply Scheme obligations to decommissioned mines.

# 6.9.2 Fugitives emissions from natural gas pipelines and oil and gas production

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

Stakeholders generally supported the proposed approach to coverage of these emissions.

The Australian Pipeline Industry Association submitted that some gas transmission pipelines will not meet the 25 000 tonne threshold and suggested that Scheme obligations could apply to downstream entities in these circumstances:

"As gas transmission pipelines meter energy in and out of the transmission pipelines, either upstream or downstream, liability can be adopted with the same accuracy and coverage as emissions." (Submission 584)

The Government does not consider it necessary to reduce the emissions threshold or to apply Scheme obligations to other entities in these circumstances. Pipelines are monopolies so competitive distortions are unlikely to arise if some but not all fugitive gas emissions are covered.

#### Policy position 6.16

Fugitive emissions will be covered from Scheme commencement.

Scheme obligations will apply to entities with a facility that has direct (Scope 1) emissions of 25 000 tonnes of carbon dioxide equivalent a year or more.

## 6.10 Waste emissions

The waste sector accounts for around 3 per cent of Australia's emissions. Around 80 per cent of waste sector emissions are from solid waste, with the remainder from waste water (around 20 per cent) and solvent and clinical waste incineration (contributing less than 1 per cent of waste emissions).<sup>16</sup>

Emissions from landfill consist mainly of the uncontrolled release of methane from decomposing organic material, such as food, paper, garden waste and wood.

Waste sector businesses such as materials recovery facilities do not have fugitive emissions but use energy, with energy emissions being covered upstream. The Scheme will encourage resource recovery because the alternative—sending waste to landfill—will become more expensive once pollution permits are required for emissions from waste landfill facilities. The Scheme is also likely to provide incentives to manufacture recycled products because in more circumstances the alternative—manufacturing products from new materials—is more emissions-intensive and will therefore become more expensive once energy and industrial process emissions are covered throughout the economy.

#### **Green Paper position**

Emissions from the waste sector would be covered from scheme commencement, with the precise scope of coverage, threshold and other detailed design issues to be determined.

## 6.10.1 Solid waste to landfill

Following the release of the Green Paper, the Department of Climate Change released a discussion paper outlining some design options for coverage of solid waste landfill facilities, focusing on the treatment of legacy emissions, participation thresholds and closed sites.

Stakeholders indicated in-principle support for waste sector coverage, but expressed concerns about the accuracy of emissions estimation methodologies and opposed the inclusion of emissions from past waste streams (known as 'legacy emissions'). SITA Environmental Solutions noted:

"The consequences of failing to adequately grandfather the emissions from waste disposed in the past results in essentially 'retrospective legislation' and places an additional burden to the current generation and future generations." (Submission 406)

Landfill operators will have difficulty in passing on the costs of legacy emissions in some circumstances. Transpacific Industries Group Ltd noted that:

"In competitive markets, disadvantaged landfills would not be able to pass-through to customers their higher CPRS costs, with the result that landfill profitability would be substantially diminished. The economic viability of some landfills would be threatened and premature closures would be likely." (Submission 253)

Legacy emissions will comprise the whole solid waste sector in 2010 and will continue to be present in significant (but diminishing) quantities for decades to come. The Government recognises that some operators will have difficulties in managing permit liabilities for emissions from past waste streams. Rather than excluding legacy emissions from the Scheme entirely, the Government will exclude them until 2018. Chapter 7 outlines how legacy emissions will be measured to enable their exclusion until 2018.

Landfill emissions decline most rapidly in the first few years. Figure 6.6 illustrates the typical emissions profile for a landfill facility over its lifetime.



Source: Department of Climate Change using data estimated by a Hyder Consulting model. The data reflects a hypothetical landfill site in NSW that opened in 1973 and accepted 450 000 tonnes of waste in 2007. Model parameters reflect Department of Climate Change default values and guidelines.

The Government estimates that legacy emissions will fall by between 30 per cent and 60 per cent (depending on the site's location and whether it captures methane) in the period between the release of the White Paper and the commencement of Scheme obligations for these emissions.<sup>17</sup> Excluding legacy emissions for this period will reduce the financial impact on landfill operators accordingly and will allow time to assess other abatement opportunities.

Operators of sites that are *already* closed have no opportunity to pass on Scheme costs and will be excluded from the Scheme.

Incentives to reduce legacy emissions will be provided in three ways. Firstly, methane capture will be allocated equally between 'legacy' and 'new' emissions. A reduction in a landfill's permit obligations with respect to emissions from new waste will necessarily be accompanied by an equivalent reduction in emissions from legacy waste. The alternative would be to allow abatement of legacy emissions to be used to offset Scheme obligations for new waste emissions. However, this approach would give operators of older landfill sites, with a higher proportion of legacy emissions, an advantage over newer sites.

Secondly, the Renewable Energy Target will continue to provide incentives to capture landfill waste methane to generate renewable electricity (including at sites that are already closed). Renewable energy targets under this Scheme will increase substantially in the period to 2020—from 9 500 MWh to 45 000 MWh.

Finally, emissions from waste landfill facilities are already regulated by state and local governments. The Australian Government will continue to work with these governments to further reduce legacy emissions in the period prior to coverage of these emissions.

Some local councils expressed concern about their ability to pass on any increases in costs associated with the Scheme, particularly as a result of coverage of waste emissions. The Western Australian Government Association noted that:

At present, local government has limited capacity to pass on the additional costs arising from the CPRS in the form of rates. (Submission 235, p. 4)

However, analysis from Hyder Consulting notes that local government regulations typically allow for cost recovery within rate setting processes and that any additional waste management costs can be passed on to rate payers after appropriate community consultation<sup>18</sup>.

#### Policy position 6.17

Emissions from landfill sites that closed prior to 30 June 2008 will not be covered.

Subject to participation thresholds, all other landfill facilities will be covered from Scheme commencement.

To ameliorate the impact of emissions from past waste streams (known as 'legacy' emissions), estimated emissions from waste deposited in the past will be excluded from the Scheme until 2018.

Methane that is captured will be allocated equally between legacy and new emissions.

Legacy emissions will be reported and counted towards participation thresholds.

#### Thresholds

Participation thresholds are designed to balance the benefits of increased Scheme coverage against the costs of Scheme compliance.

The general Scheme threshold is 25 000 tonnes of  $CO_2$ -e a year. Applying this threshold to waste landfill sites would create a high risk of waste displacement in some markets. In the Green Paper, the Government therefore raised the possibility of lowering this threshold for waste landfill facilities.

Some stakeholders objected to a departure from the 25 000 tonne threshold arguing that this would place an unfair burden on the waste sector compared with participants operating in other industries.

For other sources of emissions, the Government has been careful to develop approaches to coverage that avoid creating competitive distortions between closely competing entities on either side of the threshold. For example, for energy emissions (70 per cent of Australia's emissions), Scheme obligations will apply to upstream fuel suppliers as well as large fuel users to achieve comprehensive coverage of this source of emissions.

By contrast, waste sector facilities that fall below the threshold will not face a carbon price in any form—either directly or indirectly. Application of the Scheme threshold therefore has the potential to cause displacement of waste from covered to uncovered sites to avoid permit obligations. This is a particular concern in urban areas where markets are highly competitive.

Analysis by Hyder Consulting suggests that it would be cost-effective to transport waste up to 82 kilometres (return) at a carbon price of 20 a tonne of CO<sub>2</sub>-e.<sup>19</sup> Stakeholder comments were consistent with this analysis. Thiess Services noted:

"Customers are attracted to facilities with lower disposal rates even if they have to travel longer distances ... Thiess Services currently receives waste that has been transported over 200 km because of inadequate availability of alternative sites." (Submission 229)

Over time, the consistent application of a 25 000 tonne threshold could lead to distortions in the market structure, with a possible increase in the number of sub-threshold facilities— although local planning authorities have some scope to influence this outcome. The NSW Government noted:

If the threshold is set too high, it could create perverse incentives for the diversion of waste to sub-threshold landfills and for the proliferation of small landfills. (Submission 903, p. 9)

Many stakeholders supported reducing the threshold to 10 000 tonnes of CO<sub>2</sub>-e a year, or lower, in urban areas with highly competitive markets. Transpacific Industries noted:

"A high coverage threshold would provide a competitive advantage to smaller sites, potentially resulting in (a) significant competitive harm to older and larger landfills and (b) diversion of waste to facilities that do little or nothing to abate emissions. Transpacific therefore submits that a low threshold is preferable in competitive markets." (Submission 253)

However, stakeholders in non-urban areas opposed a lower threshold. Key stakeholders from state governments and local councils noted that a 10 000 tonnes threshold would discourage consolidation of the many small landfill sites scattered throughout rural and regional Australia. The Australian Local Government Association noted that:

"Lowering the threshold to 10 000 tonnes  $CO_2$ -e may act as a direct disincentive to regionalisation of landfill facilities and actively work against attempts by many State Governments to encourage a rationalisation of smaller, less efficient, often unlicensed landfills into better managed, larger licensed facilities." (Submission 769)

To address these competing concerns, the Government will apply Scheme obligations to landfill waste facilities that emit 25 000 tonnes of  $CO_2$ -e a year unless they are within a certain distance, for example 80 kilometres, of another open landfill facility, in which case the
threshold will be lowered to 10 000 tonnes of  $CO_2$ -e a year. The distance between landfill sites that would trigger a reduction in the threshold will be calibrated and adjusted as necessary to avoid waste displacement.

In addition to reducing the risk of waste displacement, this approach will constrain administrative costs for the smallest waste facilities—such as those scattered through rural and regional Australia—without introducing distortions in the highly competitive urban markets and with comparatively little reduction in emissions coverage.

A number of stakeholders suggested that thresholds should be based on the licensed capacity of each site (that is, how much waste a facility is licensed to accept) rather than emissions. The Government does not support this approach. It would introduce additional design complexity, requiring different waste volume thresholds for landfill sites and alternative waste-treatment facilities.

There is no risk of waste displacement once landfill sites are closed. To assist operators to manage post-closure obligations, the Government will, therefore, increase the post-closure threshold for new solid waste facilities to 25 000 tonnes of  $CO_2$ -e a year 10 years after site closure. Analysis suggests that, for a reasonably large facility with 60 per cent gas capture, increasing the post-closure emissions threshold from 10 000 tonnes to 25 000 tonnes would reduce the duration of post-closure participation by 20 to 25 years (depending on its location) — to around 35–40 years.

## **Requirement to hold permits**

Landfill operators are in the best position to decide how to manage their future permit obligations, including decisions around the timing of permit purchases. It is likely that most would prefer to retain flexibility in this regard. In general, a sound financial strategy would require that future costs are fully reflected in landfill gate fees and that funds are invested appropriately to ensure that post-closure obligations can be met.

The Government will not be prescriptive about how operators should manage their finances or time their permit purchases. However, the Government is keen to minimise the risk of sites being abandoned by ensuring that operators have appropriate financial strategies in place. The Scheme regulator will have a range of enforcement powers to ensure that operators are taking appropriate steps to cover future Scheme obligations.

#### Policy position 6.18

In general, the Scheme will cover landfill facilities that emit 25 000 tonnes or more of carbon dioxide equivalent a year.

However, to avoid waste displacement from covered to uncovered sites, a lower participation threshold of 10 000 or more of carbon dioxide equivalent a year will apply to landfill facilities that are operating in proximity to another operating landfill facility (within a distance to be determined)

This participation threshold will return to 25 000 tonnes or more of carbon dioxide equivalent a year, 10 years after the site closes.

## 6.10.2 Waste water

The waste water emissions from the decomposition of organic matter in waste water occur primarily at municipal waste water treatment plants. Waste water treatment also occurs on-site at some industrial facilities. Under international reporting protocols, both on-site emissions and emissions that occur after treated waste water has been released into waterways (post-discharge emissions) are attributed to waste water treatment plants.

Stakeholders were generally supportive of Scheme coverage but had a range of concerns about emissions estimation. The inclusion of post-discharge emissions was of particular concern. The Water Services Association of Australia stated:

"In the area of fugitive emissions from the disposal of treated wastewater to oceans/waterways, significant inaccuracy and uncertainties with measurement will still be in place by the start of the CPRS in 2010 ... WSAA Members are strongly of the view that ... excluding fugitive emissions from a trading scheme where there are major uncertainties in measurement is sound and we strongly advocate this be adopted." (Submission 252)

The Government could exclude fugitive or post-discharge emissions from the Scheme. However, excluding these emissions is likely to have perverse outcomes. The quantity of waste water emissions depends on the level and type of waste treatment. Processes that reduce nitrous oxide increase on-site emissions, but substantially reduce post-discharge emissions. Excluding post-discharge emissions from the Scheme would heavily penalise sites with de-nitrification processes, particularly as nitrous oxide has a global warming potential more than 300 times that of carbon dioxide. The Government will, therefore, cover all waste water emissions in the Scheme and will continue to work with the industry to improve emissions estimation methodologies.

Stakeholders generally supported the application of a 25 000 tonne  $CO_2$ -e coverage threshold. In contrast to the solid waste sector, all waste water treatment facilities are currently government-owned and because waste water flows through established pipeline infrastructure, there is little scope for waste displacement or market distortions between covered and uncovered sites. The Government will apply the Scheme threshold to waste water facilities. This threshold will be based on the total direct (Scope 1) emissions from all sources, including post-discharge emissions. Participants in the waste-water sector without fugitive emissions—such as recycled water plants and desalination plants—will also be covered because Scheme obligations will apply to their energy use emissions (either directly or through increased energy costs).

Emissions from on-site waste-water treatment are significant at industrial facilities that process goods with a high organic content, primarily food processing plants. Consistent with international accounting rules, the Government has decided that Scheme obligations will apply to on-site waste-water treatment from the following nine industrial sectors:

- dairy production
- pulp and paper production
- meat and poultry processing
- organic chemicals production
- sugar production
- beer production
- wine production
- fruit processing
- vegetable processing.

A number of firms with waste water emissions are in the agricultural sector. Note that while agriculture emissions will not be covered from Scheme commencement, the sector is responsible for other emissions, such as transport, energy and waste emissions (see Section 6.12).

The meat processing industry noted that emissions from large but not small waste water facilities might be included in the Scheme and argued that

(t)his may create a commercial environment increasing the number of smaller (and potentially less efficient) processors at the expense of larger processes (Australian Meat Industry Council, Submission 401, p. 5)

The Government acknowledges that the Scheme may result in competitive distortions between facilities on either side of the threshold within the meat processing and possibly other sectors. In sectors such as milk production, however, most waste water is recycled so few facilities would trigger a 25 000 tonne CO2-e threshold.

The Government is not inclined to address this issue by reducing the threshold to ensure more comprehensive coverage of waste water emissions, as this would bring many small waste water treatment plants in regional towns and urban areas into the Scheme, substantially increasing the number of entities with Scheme obligations and Scheme administrative costs. Further, abatement technologies are available to industrial food processors to reduce their emissions from waste water, potentially bringing facilities below the Scheme threshold.

Technologies exist to capture methane emissions from waste water storage ponds, and to flare or use this to generate electricity. The Government is aware of four meat processing facilities in Australia that have made use of these abatement technologies. However, methane flaring and generation plants in this sector are relatively new and technical modifications are required for full commercialisation across all types of meat processing. Entities in all industries will be eligible to apply to access the Climate Change Action Fund to implement new low emission technologies.

# 6.10.3 Waste incineration

Solvent and clinical waste incineration comprises carbon dioxide emissions from the incineration of waste—particularly hazardous waste—that cannot be sent to landfill or recycled. Waste incineration is limited to a small number of sites. There are a handful of dedicated clinical waste incineration sites. Solvent waste is incinerated at liquid waste management sites or used as a fuel at industrial sites.

No stakeholders commented on the inclusion of waste incineration in the Scheme.

The Government notes that there are site-specific methodologies for estimating emissions from solvent and clinical waste incineration and that most emissions are from large facilities. The Scheme's direct emissions threshold will be used to determine which entities will have Scheme obligations.

#### Policy position 6.19

Emissions from waste water and waste incineration facilities will be covered from Scheme commencement.

Scheme obligations will apply to entities with a facility that has direct (Scope 1) emissions of 25 000 tonnes of CO2-e a year or more.

# 6.11 Synthetic greenhouse gases

Synthetic greenhouse gas emissions account for around 1 per cent of Australia's emissions (or around one-fifth of industrial process emissions). These emissions are from the use of commercial and household equipment such as refrigeration, air-conditioning and high-voltage electrical equipment.<sup>20</sup>

#### **Green Paper position**

Synthetic greenhouse gas emissions would be covered from scheme commencement by applying scheme obligations to bulk importers of synthetic greenhouse gases, large importers of equipment containing synthetic greenhouse gases, and domestic synthetic greenhouse gas manufacturers (of which there are currently none), with a threshold to be determined.

Stakeholders had mixed responses to this proposal. Many supported coverage of all six greenhouse gases, including the synthetic greenhouse gases. Some explicitly supported the approach outlined in the Green Paper. For example:

Given the diffuse nature of SGHG [synthetic greenhouse gas] emissions DoloMatrix supports the proposed approach of placing liability at point of import.' (DoloMatrix, Submission 247, p. 3)

On the other hand, Refrigerants Australia and its members argued that HFC emissions should not be covered because this would significantly increase the price of refrigerant gases, creating financial risks for importers, intermediate suppliers and downstream users. These stakeholders argued that HFC emissions should be addressed via the existing quota system established for Montreal Protocol gases under the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*.

Reducing quotas for current importers of synthetic greenhouse gases would involve higher abatement costs relative to Scheme coverage. Such an approach would create incentives to replace equipment containing synthetic greenhouse gases with alternative technologies at the end of their productive life but would provide few other incentives to reduce emissions. While this approach would not involve Scheme compliance costs, it would entail other costs, including forgone sales for equipment importers that are not able to reduce their reliance on synthetic greenhouse gases; reduced competition because quota restrictions would limit access to Australian markets; and impacts on the competitiveness of Australian equipment manufacturers if HFCs become too scarce. By contrast, Scheme coverage will create incentives to reduce emissions in whichever way is more cost-effective across all sectors of the economy.

Market-based approaches have been used successfully to reduce emissions of synthetic greenhouse gases, in Scandinavia for example, as noted by the Green Cooling Council:

Emission reductions achieved in Scandinavia by higher prices on HFCs has provided a persuasive example of the success of this approach. (Submission 714, p. 3)

The Government has analysed claims that coverage would create financial risks for importers and retailers of equipment containing synthetic greenhouse gases. Under the proposed approach to coverage, Scheme obligations or an equivalent carbon price would apply to all synthetic greenhouse gases sold in Australia. Although the value of permits relative to operating costs will be high for bulk gas importers, competitive pressures will mean that Scheme costs can be passed on to consumers. Scheme coverage will create incentives to reduce the use of synthetic greenhouse gases and will encourage consumers to purchase lower emission equipment. Importers, like other liable entities, will need to manage the cash-flow requirements associated with Scheme obligations.

Scheme participants will be able to charge prices that incorporate expected permit prices well in advance of the time they will need to purchase and surrender permits. For example, a synthetic gas importer selling gas in July 2010 will not be required to surrender permits related to that gas until December 2011. This is a general feature of the Scheme creating a lag between the time at which an event gives rise to a liability and the time at which the permit must be surrendered. Furthermore, synthetic greenhouse gas merchants are likely to be able to draw on existing stocks of gas for some time, which do not attract permit liabilities. Some stakeholders argued that Scheme obligations should not apply to imported synthetic greenhouse gases because only a small portion of these gases, which are contained in equipment, will ever be emitted to the atmosphere. Synthetic greenhouse gases are not necessarily emitted in the year of import or manufacture. However, over the life of the equipment emissions occur as a result of slow, constant leakage, system failure resulting in complete venting of the gas to the atmosphere, and handling losses. When equipment reaches the end of its working life, a portion of the original gas may be available for recovery and destruction. An intended part of the Scheme would be to increase incentives for such recovery and reductions in other losses.

The Government's approach to coverage recognises that synthetic greenhouse gases imported or manufactured will be emitted either during the life of the equipment or upon disposal, unless efforts are taken to recover and destroy the gas at end of life. The objective of coverage is to cost effectively apply a carbon price whenever this occurs. To simplify the administration of the Scheme, obligations will apply when gases are imported or manufactured, rather than annually as they are released to the atmosphere. Gases that are subsequently recovered and destroyed will be accounted for by providing permits for destruction as outlined in Section 6.11.1. This approach ensures that Scheme obligations are based on an accurate estimation of the totality of synthetic greenhouse gas emissions.

## 6.11.1 Detailed synthetic gas coverage design issues

The Department of Climate Change released a discussion paper on detailed design issues relating to coverage of synthetic greenhouse gas emissions before an industry workshop on 26 August 2008. The discussion paper focused on thresholds for synthetic greenhouse gas importers, destruction of synthetic greenhouse gases and complementary measures for hydrochlorofluorocarbons (HCFCs).

## Thresholds

Approximately 600 entities import synthetic greenhouse gases and there are currently no domestic synthetic greenhouse gas manufacturers. Many of these entities import small amounts of synthetic greenhouse gases in equipment. A threshold could be applied to exclude these entities as their participation in the Scheme may not be cost-effective.

Stakeholders generally supported a low threshold or no threshold because of the risk of competitive distortions between entities on either side of the threshold.

AREMA agrees that, should the CPRS go ahead in its current form, it is essential for both the integrity of the program and for equity reasons that charged equipment importers be included. However, the introduction of a threshold is fraught with danger, given the market distortions this entails. The introduction of a threshold can also lead to the development of artificial business restructuring and other artificial strategies to allow firms to come in under the threshold. (Airconditioning and Refrigeration Equipment Manufacturers Association, Submission 582, p. 3)

A threshold of 25 000 tonnes of  $CO_2$ -e would achieve coverage of 95 per cent of imported synthetic greenhouse gases and require participation by approximately 45 of the largest synthetic greenhouse gas importers. This threshold would create competitive distortions. Distortions could be significant among bulk synthetic greenhouse gas importers because the

cost of permits will generally be greater than the market price for the synthetic greenhouse gas. Distortions could also arise between importers of synthetic greenhouse gases in equipment, particularly where the permit value of the synthetic greenhouse gas contained within the equipment is high compared to overall price of the product. On the other hand, lower thresholds would reduce the scope for competitive distortions but would bring into the Scheme smaller entities whose Scheme compliance costs would be considerably higher than those of other Scheme participants.

Mindful of the need to keep compliance costs as low as possible, the Government will cover synthetic greenhouse gas emissions by applying Scheme obligations to entities that import or manufacture gases that result in emissions of 25 000 tonnes of  $CO_2$ -e a year or more. In response to stakeholders' competitiveness concerns, the Government will develop measures to remove the potential for market distortions resulting from the application of the threshold.

## Destruction

Currently, destruction of synthetic greenhouse gases represents less than 5 per cent of new gases introduced into the domestic market. The cost of recovering and destroying synthetic greenhouse gases acts as a barrier to recovery and disposal of these gases.

Schneider Electric notes that it is expensive to reclaim and recycle  $SF_6$  from disused equipment, and a carbon price does not offer a sufficient incentive for recycling. (Schneider Electric, Submission 308, p. 5)

Stakeholders did not identify obstacles to the Government's proposed approach to coverage of synthetic greenhouse gas destruction.

The Government will provide permits to destruction facilities or entities that have a contractual arrangement with a destruction facility to destroy used synthetic greenhouse gases. This will allow the market to determine the most efficient option for submitting claims for synthetic greenhouse gas destruction. Claims for synthetic greenhouse gas destruction will need to be made in accordance with specified requirements for verification. These will be designed to ensure there are no perverse incentives to import or manufacture these gases to receive permits for their destruction.

#### **Montreal Protocol gases**

A number of stakeholders acknowledged the potential for competitive distortions where HCFCs (gases controlled under the Montreal Protocol) are not covered under the Scheme. Refrigerants Australia noted:

At present the import of HCFC equipment is not subject to any limit—there would be an incentive to import more of this equipment, to both the detriment of the climate and the ozone layer. (Submission 444, p. 8)

Some stakeholders also raised concerns about the cost of destroying ozone-depleting substances.

Without funding from the import and sale of SGG [synthetic greenhouse gas] refrigerants the RRA [Refrigerant Reclaim Australia] program is not sustainable in its

current form and an alternative approach will need to be developed to take back the ODS [ozone-depleting substance] refrigerant. (Refrigerant Reclaim Australia, Submission 691, p. 12)

Stakeholders suggested ways to address these issues. DoloMatrix suggested that Scheme coverage should be extended to include HCFCs. A number of stakeholders, including Refrigerants Australia and the Airconditioning and Refrigeration Equipment Manufacturers Association, supported a ban on the import and domestic manufacture of equipment containing HCFCs, analogous to the ban that was put in place prior to the phase-out of chlorofluorocarbons. The Green Cooling Council (Submission 714, p. 4) suggested that an impost on HCFC emissions could be introduced through the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989* import levy, which would 'resolve the competitive distortions in the refrigerant market and enable provision of consistent recovery incentives'.

A ban on the import and domestic manufacture of equipment containing HCFCs would be consistent with measures implemented in the US, Europe and Japan and would have the advantage of reducing Australia's reliance on HCFCs in the lead-up to the complete phase-out of HCFCs. However, this will not remove competitive distortions where entities operating existing HCFC equipment compete with entities using HFCs. As noted by Refrigerants Australia:

There will be an incentive to stay with HCFC equipment, rather than convert to HFCs (Submission 444, p. 8).

To minimise the potential for perverse outcomes for Australia's ozone protection program, the import and domestic manufacture of equipment containing HCFCs will be prohibited from Scheme commencement. The Government will develop other measures to minimise competitive distortions that might otherwise arise between HCFCs and gases covered under the Scheme.

## Policy position 6.20

Synthetic greenhouse gas emissions would be covered from Scheme commencement.

Scheme obligations will be applied to entities that import or manufacture (there are currently none) 25 000 tonnes of  $CO_2$ -e a year or more.

Permits will be issued to entities that arrange for the destruction of used synthetic greenhouse gases in accordance with Scheme verification requirements.

# 6.12 Agriculture emissions

Agriculture emissions consist mainly of methane and nitrous oxide from livestock and cropping and make up 16 per cent of Australia's emissions. This is Australia's second largest source of emissions.<sup>21</sup>

In the Green Paper, the Government outlined the reasons why it would not be practical to cover agriculture emissions from Scheme commencement.

Estimating agriculture emissions is complex. These emissions are highly variable in response to management practices and climatic conditions. For example, cattle breeds and feed types in tropical and subtropical regions differ from those in temperate regions, generating different amounts of methane. Nitrous oxide emissions from soils in major cereal-growing regions vary geographically and over time, according to rainfall, soil types and fertiliser application rates.

The sector also includes more than 100 000 entities, many of which emit only small amounts of greenhouse gases each year. Only a small number of farm businesses emit more than 25 000 tonnes of  $CO_2$ -e a year, which is the general Scheme threshold. If Scheme obligations were applied to farm businesses above this threshold only, most agriculture emissions would not be covered by the Scheme. Significant competitive distortions would then arise between closely competing farm businesses on either side of the Scheme threshold. On the other hand, a lower participation threshold would impose compliance costs on farm businesses that would be disproportionately higher than for other businesses within the Scheme.

#### **Green Paper position**

The Government is disposed to include agriculture emissions in the scheme by 2015 and to make a final decision on this in 2013.

Given the compliance costs that would be involved if scheme obligations were to apply at farm level, the Government seeks stakeholder views on the merits of an approach to coverage that would apply obligations generally off-farm, at some other point in the supply chain (for example, on fertiliser suppliers, abattoirs, dairies and beef exporters). The Government recognises that any approach will also need to provide appropriate incentives for on-farm abatement.

Most stakeholders agreed that coverage of agriculture would not be practical from Scheme commencement. Some submissions argued that the Government should consider complementary measures (such as voluntary offsets or financial support for best management practices) to achieve emission reductions prior to potential coverage in 2015 or as a longer-term alternative to inclusion in the Scheme.

Agriculture stakeholders indicated preference for farm-level measurement and application of permit liabilities, suggesting this would give maximum incentive to achieve abatement. Others raised general concerns about compliance costs. The Government is still disposed towards an approach where Scheme obligations are generally applied off-farm while ensuring there are incentives for on-farm abatement, though this will be subject to further consultation with stakeholders and analysis.

The Queensland Farmers' Federation questioned whether the Carbon Pollution Reduction Scheme was the best way to reduce carbon emissions in the farming sector. It called on the Federal Government to consider more cost-effective alternatives such as accelerated uptake of best management practices.

Stakeholders outside the agriculture sector supported inclusion of the agriculture sector at the earliest opportunity, noting that this would reduce the overall costs of achieving Australia's mitigation targets and hence the burden on other sectors of the economy.

The Government has indicated its preference that the costs of achieving emission reductions should be shared across the economy; that is, all sectors should be subject to equivalent carbon costs. Such an approach is equitable and, importantly, enables Australia's mitigation targets to be achieved at lower cost. If the Government decides in 2013 not to cover agriculture emissions in the Scheme, it will consider alternative mitigation measures.

To ensure that the agriculture sector makes an equivalent contribution to other sectors, the Government is disposed to apply mitigation measures that result in costs similar to those under the Scheme. For example, if the carbon price was \$25 per tonne of  $CO_2$ -e, the Government would seek to mandate the use of mitigation technologies or practices in the agriculture sector with the intention of achieving a cost of around \$25 per tonne  $CO_2$ -e.

In practice, the costs of meeting regulatory requirements can be difficult to predict, are likely to differ from business to business and are, therefore, likely to impose higher overall costs on the sector.

Stakeholders were concerned that current international accounting rules did not present an accurate picture of emissions from land-based sectors. For example, the National Farmers Federation argued that:

International greenhouse accounting rules for the land-based sectors do not appropriately acknowledge the full sequestration function of agricultural production systems. These accounting rules do reflect Australia's obligation under the Kyoto Protocol but are not appropriate for the longer term goals of Australia's CPRS and are adding to misleading interpretations of agriculture's contribution to global warming. (Submission 462, p. 16)

Stakeholders encouraged the Government to negotiate changes to international rules or to implement a domestic Scheme that is not consistent with the Kyoto Protocol but instead based on optimal accounting rules. The Australian Government will continue to work towards international accounting rules that are scientifically based and suited to Australia's particular circumstances. Any decision to adopt accounting rules that differ from the international rules would result in the need for the Government to purchase international units or tighten the cap, transferring additional costs on to the rest of the community.

A number of stakeholders suggested that the Government should indicate the conditions it considers would need to be met for agriculture emissions to be included in the Scheme. The National Farmers' Federation (NFF) also noted that detailed analysis and stakeholder consultation will be required to assess the practicality of including agriculture emissions in the Scheme. The Government will apply the same approach to coverage of agriculture emissions as other sources of emissions (see Section 6.2). Coverage will not be dependent on achieving any particular outcome in international negotiations on the accounting framework for emissions from land use.

Key stakeholders including the NFF also called for a work program to be developed in the lead-up to decisions on coverage of agriculture emissions. Emissions estimation and reporting capabilities will also need to be developed. The Government will, therefore, undertake a comprehensive work program towards coverage of agriculture emissions, commencing in 2009 and consisting of the following elements:

• economic analysis of the impacts of coverage and of different points of liability

- analysis of the supply chains for agricultural products to identify cost-effective points of obligation
- research to improve the accuracy of emissions estimation and development of emissions reporting capabilities
- a voluntary trial program of emissions reporting through the National Greenhouse and Energy Reporting System, commencing no later than 2011
- consultation with the agriculture sector on the above elements.

Research on reducing greenhouse gas emissions, soil management and adapting to changing climate for the agriculture sector is currently being supported through Australia's Farming Future, which is administered by the Department of Agriculture, Fisheries and Forestry.

Stakeholders also queried eligibility for emissions-intensive trade-exposed (EITS) assistance. Should agriculture emissions be included in the Scheme from 2015, the eligibility of agricultural activities for EITS assistance will be considered in the process leading up to the decision on coverage in 2013. The Government's disposition is to assess the eligibility of these activities using emissions information from 2006/2007 to 2007/2008 as for all other potential EITE activities. The guiding principle is to provide ongoing incentives for abatement activities in this sector up until their potential inclusion in the Scheme.

## Policy position 6.21

- The Government is disposed to include agriculture emissions in the Scheme by 2015.
- Commencing in 2009, the Government will undertake a work program in consultation with the agriculture industry to enable a decision in 2013 on coverage of agriculture emissions in 2015.

# 6.13 Reforestation

Parties to the Kyoto Protocol must count emissions and removals of greenhouse gases over the commitment period (2008–12) from forests established after 1 January 1990 on previously cleared land ('reforestation', as defined for the first commitment period of the Kyoto Protocol—see Box 6.6).

#### Box 6.6: Reforestation under the Kyoto Protocol

Under the Kyoto Protocol rules, 'reforestation' is defined as the direct human-induced conversion of land that was clear of forest at 31 December 1989 to forested land.<sup>22</sup>

Australia's definition of a forest for Kyoto Protocol purposes is:

- a forest of trees with a potential height of at least two metres and crown cover of at least 20 per cent; and
- in patches greater than 0.2 hectares in area.

Reforestation only occurs where a positive human action has been undertaken to establish the forest. The removal of suppression activities (e.g. grazing) or the realisation of the potential of the existing vegetation would not be considered to be a positive human intervention.

In the Green Paper, the Government proposed to cover reforestation (as defined for the first commitment period of the Kyoto Protocol) on a voluntary basis from Scheme commencement.

#### **Green Paper position**

All reforestation (as defined for the first commitment period of the Kyoto Protocol) would be included, on a voluntary basis, from scheme commencement in 2010, with design details to be determined.

The Department of Climate Change subsequently released a discussion paper outlining some design options relating to coverage of reforestation.

Forest industry stakeholders generally supported a voluntary approach to coverage of reforestation. However, almost all forest industry stakeholders noted that the Kyoto Protocol rules for forestry are not comprehensive and have other flaws. For example, the rules do not recognise the carbon stored in harvested wood products (harvesting is treated as an emission at the time of harvest). On the other hand, some stakeholders did not support the potential inclusion of non- $CO_2$  emissions from reforestation under the Scheme even if they are included in the national accounts.

Forest industry stakeholders argued that permits should be issued for carbon sequestration that is not recognised under the current Kyoto Protocol rules. By contrast, many conservation groups argued that reforestation should not be covered until other forms of land use, including native forest management, are included in the Scheme. In the absence of comprehensive Scheme coverage of forests, these conservation groups consider that voluntary coverage of reforestation could have detrimental impacts on biodiversity. For example, some stakeholders were concerned that plantations would be maintained for carbon while managed native forests would be subject to additional harvesting. Plantations could potentially be worth more as standing carbon than as wood products....Logically there could be a shift from plantation timber back to native forests as emissions from native forest logging will not be accounted for. This perverse outcome would ensure the rapid destruction of remaining carbon dense native forests in Tasmania. (Environment Tasmania, Submission 459, pp. 5-6)

As noted in the Green Paper, consideration has been given to including emissions and removals that are not counted toward Australia's international commitments in the Scheme. However, this would increase the costs of the Scheme because Australia would still need to meet its international commitments by tightening the Scheme cap (with other participants bearing the burden) or buying international units equivalent to the permits issued for non-Kyoto Protocol sequestration. This could also limit the tradability of Australia's permits, as other countries are less likely to link with schemes that include emissions or adopt accounting approaches that are not internationally recognised.

The Government notes that international accounting rules for a post-2012 climate change agreement, including for Land Use, Land-Use Change and Forestry, are currently under negotiation (see Section 6.1). If international rules change, the Scheme should be flexible enough to include additional sinks and sources or accounting approaches that have been internationally agreed. This will ensure that the Scheme continues to align with the evolving international climate change framework.

To provide forest entities participating in the Scheme with sufficient time to manage the potential liabilities that could arise from changes to international rules, the Government will in general provide five years notice of any unanticipated changes that would materially affect supply and demand of Scheme permits.

As the Government noted in the Green Paper, the benefits of Scheme participation will be greatest for owners of new forests that are not harvested. The benefits for harvest or plantation forests will depend on the flexibility of harvesting schedules, future log prices and future carbon prices. For example, Scheme participation might not be beneficial for single-rotation plantations, such as those owned through managed investment schemes, because of the risk that the cost of obligations under the Scheme for harvest emissions would exceed the value of permits received for sequestration. The Government therefore expects that most forests established as a result of the Scheme will be not-for-harvest forests grown on marginal or less productive farm land, rather than plantations. This reduces the risk that plantation forests would be maintained for carbon, while native managed forests are subject to additional harvesting.

Further, the Scheme will not provide incentives to clear native forests in order to re-establish forests that are eligible to receive Scheme permits: such forests would not meet the Kyoto Protocol definition of reforestation and would therefore be ineligible to receive Scheme permits.

There are national environmental frameworks in place to protect native grasslands (which could be cleared to establish Scheme forests) and remnant vegetation (which could be cleared for agricultural production, to compensate for the conversion of agricultural land to forestry), including the:

• National Strategy for the Conservation of Australia's Biological Diversity (National Biodiversity Strategy)

• National Framework for the Management and Monitoring of Australia's Native Vegetation (Native Vegetation Framework).

These national frameworks are agreed between all jurisdictions and are complemented by specific policies, legislation and management approaches within each jurisdiction. The Commonwealth, state and territory governments have also enacted legislation for environmental protection, including to regulate the broad-scale clearing of native vegetation and to protect threatened species and ecological communities. There are also Commonwealth and state government incentive programs to conserve biodiversity on private land.

Submissions from the agricultural industries expressed concern about the potential for landuse change from agriculture to forestry. A shift towards less emissions-intensive activities, including farm forestry, is an intended consequence of the Scheme as it would reflect an efficient allocation of resources taking into account the carbon price. However, as noted above new forests are likely to be established on more marginal or less productive agricultural land and will not undermine food security.

Some stakeholders expressed concern that an increase in reforestation could have unintended consequences for water availability.

The National Water Initiative recognises the impact of forest planting, and Australian governments have agreed to assess the significance of water interceptions on catchments and aquifers by no later than 2011 and to apply appropriate planning management and regulatory measures where necessary. Governments have agreed to accelerate work including the development of best practice national approaches to manage specific forms of interception such as plantations.<sup>23</sup>

The National Water Initiative requires water entitlements be held for significant interceptions (including plantations) in catchments that are over-allocated or are approaching over-allocation. Over time, National Water Initiative reforms should result in full-cost pricing of water for all land-use purposes.<sup>24</sup>

The Scheme regulator will not have the capacity to assess the natural resource management implications (for water or biodiversity) of reforestation activities. For this reason, and to ensure that multiple regulators do not make decisions on the same issues, the Government will not require the Scheme regulator to take account of natural resource management issues when assessing whether forests should receive permits. The existence of separate frameworks for natural resource management complements such an approach.

Forest entities who participate in the Scheme should be aware of their current and prospective obligations under the National Water Initiative and other regulatory frameworks. Forest entities will need to factor the costs of water and other inputs into their investment and management decisions.

#### Policy position 6.22

All reforestation (as defined for the first commitment period of the Kyoto Protocol) will be included, on a voluntary basis, from Scheme commencement in 2010.

The Scheme will cover only domestic emissions sources and sinks that are counted in Australia's Kyoto Protocol national account.

The Government will in general provide five years notice of changes to accounting rules that would materially affect the supply and demand of Scheme permits.

## 6.13.1 Eligible forest entities

The enforceability of Scheme obligations, which underpins the credibility of the Scheme, is a key consideration in defining eligible forest entities. If permits are issued for reforestation but Scheme obligations cannot be enforced for subsequent net emissions from these forests, emissions within the Scheme could exceed the cap. This would undermine the environmental integrity of Australia's Scheme as well as the value of Scheme permits. As a result, other countries may in future be less willing to buy Australian permits or to link to Australia's Scheme.

One way of ensuring that Scheme obligations can be enforced through time is to allow only owners of forested land—that is, entities that own both the land and the forest—to participate in the Scheme. Under this approach, the value of the land could be used to secure the debt to the Government that would arise if forests were cleared but the requisite number of permits was not surrendered. This approach would prevent lease holders and owners of carbon property rights from participating as liable entities in the Scheme. As industry stakeholders currently operate under a variety of ownership arrangements, this approach would result in significant disruption to established commercial arrangements within the industry, and was strongly opposed by stakeholders.

The alternative would be to allow into the Scheme entities that have an enforceable right to forest carbon; that is, landowners and leaseholders—provided that no subsequent right to the forest has been granted, and owners of carbon property rights. Stakeholders argued in favour of allowing owners of carbon property rights to participate in the Scheme. For example, Greening Australia argued:

Carbon rights and associated covenants are proven, widely available legal instruments that effectively secure carbon property rights while providing maximum flexibility in regards to land ownership. (Submission to Discussion Paper: Detailed design issues relating to coverage of reforestation, September 2008, p. 7)

Carbon property rights are created under state legislation and differ between states differences include the terminology and legal concepts used to describe the rights (see Box 6.7). Rights created under some state legislative regimes may not be sufficiently enforceable to enable owners of these rights to participate in the Scheme. In these cases, state governments could amend their legislation to meet Scheme requirements.

#### Box 6.7: Carbon property rights

Carbon property rights grant ownership of the carbon sequestered in trees, and in some cases soil. Some carbon property rights are an interest in land and others create a personal interest. In some cases carbon property rights legislation allows for separate ownership of the land, forest and sequestered carbon.

Under this approach, the Government would not necessarily have the value of the land as security against future Scheme debts. To reduce the risk of future non-compliance, the Government will require forest entities to meet accreditation requirements. Forest entities may have to demonstrate, for example, that they have the capacity to meet Scheme obligations and that they are fit and proper persons.

The Government will also consider the need for additional compliance measures. For example, forest entities could be required to ensure that a restriction on use is placed on the land title which could not be removed until all Scheme obligations had been satisfied. The forest entity could also be required to provide other forms of security, for example a bank guarantee. The Government will undertake further consultation with stakeholders on compliance measures.

The Government considers that, in combination, such measures would enable Scheme obligations to be enforced against forest entities that do not also own the forested land.

## Policy position 6.23

Landholders, certain lease holders and certain carbon property rights holders will be able to apply to become accredited forest entities under the Scheme.

# 6.13.2 Estimation methods

Like all liable entities, forest entities will be required to monitor their emissions according to defined methodologies. The Government could specify a single methodology for estimating emissions and removals for reforestation or allow entities to use their own methodologies provided that these meet certain standards.

The Government uses the National Carbon Accounting System (NCAS) to calculate emissions and removals from reforestation for Australia's national greenhouse gas inventory. The Government has also developed the National Carbon Accounting Toolbox (NCAT). The NCAT provides entity-level accounting capability using the same data and modelling applied in the NCAS, but allows entities to modify forest types and management activities.

#### Box 6.8: The National Carbon Accounting System

The National Carbon Accounting System (NCAS) generates emissions and removals estimates based on the modelled interactions between carbon flows, climate, and management (for example, cultivation, burning and harvesting) of forests. NCAS estimates are based on remote sensing (satellite imagery), climate and soil data, and extensive databases on forest type and management.

Identification of reforestation is based on satellite imagery to identify forest and non-forest cover for the entire continent at a 25 metre resolution. This method provides a high degree of certainty for the establishment of forests that meet the Kyoto Protocol definition. Vegetation that meets the definition but cannot be confirmed as resulting from direct human activity is excluded from the national accounts.

The Government will continue to regularly update the NCAS through a process of rigorous validation, verification and independent review. For example, the NCAS may be updated to reflect new information on forest growth parameters presented in scientific papers or as a result of evidence of significant changes to forest industry management practices in particular regions.

Many stakeholders expressed misgivings about the complexity and project-level accuracy of the current NCAT. Other stakeholders suggested that the NCAT did not accurately reflect the carbon sequestered in some forest types, for example biodiverse plantings. A number of organisations indicated that they want to work with the Government to develop methods for incorporating data into the NCAT; others wanted to use their own estimation methodologies.

The Government recognises the concerns expressed in relation to the NCAT. However, using only the NCAT would provide consistent low cost estimates that are aligned with the national account and would reduce the risk of permits being issued for sequestration for which Australia does not receive international recognition.

## **Box 6.9: The National Carbon Accounting Toolbox**

The National Carbon Accounting Toolbox (NCAT) uses the same data and modelling capability as applied in the NCAS to generate emissions and removals estimates for reforestation at the project level.

The NCAT estimates are based on site characteristics (e.g. soil type and climate), modified according to reflect actual management regimes and a set of standardised factors. The NCAT can estimate net greenhouse gas removals without requiring input of information on tree stem volume and wood density.

To generate emission estimates suitable for the Scheme, forest entities would have to enter into the NCAT a range of forest management data such as tree species, year of establishment, thinning events, rotation length and fertiliser application.

#### Box 6.9: The National Carbon Accounting Toolbox (continued)

The current NCAT was released in 2005 as a prototype suitable for use under existing government programs and by voluntary users. Work has commenced on a version that would meet Scheme requirements, including an improved user interface.

The Government will also consider the standard of evidence required to modify default NCAT settings and to have accepted within NCAT data on new forest types (for example, some biodiverse plantings), new management practices or new emissions or removals estimates currently not represented in the national account.

#### Policy position 6.24

Emissions and removals will be estimated using a prescribed methodology such as the National Carbon Accounting Toolbox.

## 6.13.3 Scheme obligations

To receive Scheme permits, forest entities will need to satisfy a range of reporting and other obligations designed to ensure that the correct number of permits are issued and surrendered.

An accredited forest entity wishing to include a forest in the Scheme will need to demonstrate to the regulator that the forest is compliant with the rules of the Kyoto Protocol, which will be reflected in the Scheme legislation. The regulator will provide national maps based on NCAS data to assist stakeholders to determine the eligibility of their forests. The Government expects that the maps will give enough information for most entities to demonstrate that forests meet the criteria in the Kyoto Protocol. Alternatively, the forest entity could bring forward additional supporting information, such as ground-referenced photographs, management plans and statutory declarations.

Forest entities will also need to indicate the date of forest establishment and provide information about the location of the forest.

#### **Reporting requirements**

In other sectors, Scheme obligations will be based on a liable entity's annual emissions report. However, as forests are usually net carbon sinks, forest entities are more likely to receive permits in most cases, making annual reporting less necessary to ensure compliance with the obligation to surrender permits for emissions. In addition, the Government has access to forest-specific emissions estimates generated through the NCAT. For these reasons, forest entities could report less frequently, for example every five years or at the end of an international commitment period. This would reduce costs, particularly in regards to newly established, small or mature forests.

Stakeholders generally advocated an approach to reporting similar to that under the New South Wales Greenhouse Gas Reduction Scheme; that is, annual reporting with full verification at periodic intervals, such as every five years or following each international commitment period. To minimise reporting requirements while ensuring the credibility of permits issued for reforestation, the Government will require forest entities to submit an initial emissions estimation plan and supply details of supporting forest management data, and then submit an emission estimation report at least once every five years. Forest entities may elect to report more frequently but not more than once a year. Forest entities will also be required to provide notice to the regulator of any major changes to forest management data or natural disturbance events that could materially change emissions estimates, as they occur. Forest management data supplied by the forest entity will be subject to Scheme audit provisions. Reporting requirements for reforestation will be incorporated into the National Greenhouse and Energy Reporting System and associated legislation.

The Government will also explore the option of allowing forest entities elect to have the regulator prepare an emissions estimate for them.

#### Timing and market disclosure

To facilitate Scheme implementation, registration of forests could begin before the formal commencement of the Scheme. This approach was supported by all stakeholders. To further reduce implementation pressures, forest entities will receive permits for all eligible increases in sequestration, provided forests are registered before the end of the first Kyoto Protocol commitment period.

Forests registered after the first commitment period will only receive permits for net greenhouse gas removals from date of forest registration (or for all net greenhouse removals if registered within two years of forest establishment), unless the regulator agrees otherwise. This will ensure that the market has relevant information about the supply of forestry permits.

The regulator will publish information about all forest registrations. Some stakeholders were concerned about the potential for such a register to reveal commercially sensitive information. The Government acknowledges these concerns. However, these must be balanced against the need to provide the market with relevant and timely information about the number of permits available in the Scheme. The Government notes that similar information will be made public about permit obligations for liable entities outside forestry.

#### **Policy position 6.25**

An initial emissions estimation plan will be required.

Forest entities will be required to report at least once every five years, but will be able to report at shorter intervals of not less than 12 months.

Forest entities will be required to notify the regulator of any major changes to the emissions estimation plan as a result of changes to forest management or natural disturbances.

The regulator will publish information about all forest registrations.

# 6.13.4 Crediting policy

The Department of Climate Change discussion paper on reforestation design issues outlined two broad approaches to crediting reforestation activities. The first option would be to issue and require the surrender of permits to reflect annual changes in greenhouse gas emissions and removals. This approach would ensure that crediting under the Scheme reflects the actual annual greenhouse gas emissions and removals as reported in Australia's national inventory.

This 'full crediting' approach would create risks that severe droughts or bushfires could significantly and unexpectedly reduce the number of permits available to the forest entity, and subsequently to the market, in any given year. This approach also involves high compliance costs, as permits must be issued and surrendered in line with annual changes in emissions and removals on an ongoing basis. On the other hand, this approach would expose forest entities to the full marginal carbon price at all times. Scheme forests would, therefore, be managed for optimal carbon storage and wood production.



Figure 6.7: Full crediting

Time

Note: This diagram is a stylised example provided for the purpose of illustration. The yellow bars indicate the permits issued and the blue bars indicate the permits that would have to be surrendered under a full crediting approach.

The alternative would be to issue permits on an 'average' crediting basis.<sup>25</sup> Under this approach, permits would be issued on a stand-by-stand basis for the projected net greenhouse gas removals (sinks less sources), after Scheme commencement, up to a permit limit determined by the regulator for each forest. The projected net greenhouse gas removals would be based on the forest entity's initial emissions estimation plan and updated as necessary.

Stakeholders were generally in favour of having the option to choose between full and 'average' crediting. While recognising this preference, the Government will apply the more conservative 'average' approach to crediting. While forest entities will not bear the full marginal carbon costs of their actions, this approach will reduce the risks of non-compliance, which would ultimately default to the Government to make good. It also involves lower compliance costs as permits will generally not need to be surrendered on harvest or following fire and then re-issued as the forest is re-established.

For harvest or plantation forests, the permit limit will be based on the average cumulative net greenhouse gas removals calculated to the end of rotation (immediately prior to harvest) over the longer term, for example 70 years, which is equivalent to about two long rotations. (See Figures 6.9 and 6.10).

Carbon sequestration in a forest that is never harvested will generally be much higher on average than for a harvested forest. For non-harvested forests, the permit limit would be equal to total projected net greenhouse gas removals over the long term (for example, 70 years); that is, the permit limit for non-harvested forests would be close to the maximum possible net greenhouse gas removals over the period (see Figure 6.8).

Apart from harvesting, natural disturbances such as fire, insect attack, storms or severe drought can affect carbon stocks in a forest. To account for these disturbances the permit limit could be reduced by an amount commensurate with the risk (a 'risk of reversal buffer'). This approach would generally remove the need to require surrender of permits in the event of natural disturbances. Box 6.10 provides more information about the risk of reversal buffer.

For established forests, the permit limit would be determined as per the methods described above but permits would only be issued for net removals from 2010 once carbon stocks are greater than in 2008. This will ensure that there are no perverse incentives to clear established forests in 2009 to maximise potential permits.

Permits will only be issued following acceptance by the regulator of an emissions estimation report. Permits will be issued for each tonne of net greenhouse gas removals and will only be issued in arrears, after trees have grown.

Permits will not be issued for greenhouse gas removals that have been sold as offsets, as this would result in double-counting of abatement.

#### Box 6.10: Risk of reversal buffer

The risk of reversal buffer would create a reserve to help protect forest entities against the exposure posed by emissions from natural events such as fire, insect attack, storm or severe drought. The risk of reversal buffer would be in the form of a small deduction each time permits are issued.

A delay in applying the risk of reversal buffer would mean that the forest entity would receive the full allocation of permits during forest establishment when costs are greatest. In addition, during the early years of forest growth the amount of total carbon storage and therefore potential carbon that could be lost due to natural disturbance is relatively low.

In determining each entity's risk of reversal buffer, the Scheme regulator would seek to take account of project-level risk factors, such as the number of permits issued, the location of the forest and the entity's management record. Buffers could be amended over time to reflect changed circumstances.

In general, forest entities would only be required to surrender permits if forested land is converted to an alternative non-forest land use; that is, if forests were not replanted following harvest or if they were not allowed to regenerate after a natural disturbance. Scheme obligations will also apply if a forest entity undertakes a major management event, such as harvesting without updating their emissions estimation plan.

A forest entity will not be required to surrender more permits than had been issued for an individual forest stand; that is Scheme obligations would be capped.

The Government will enforce Scheme obligations against the forest entity for a defined period, for example 70 years following the issue of the last permit for an individual forest stand, rather than indefinitely.

The permit limit will be revisited periodically where necessary to take account of changes in forest management or the international accounting rules, and to reflect changes in the prescribed estimation method. If changes to the accounting rules or the estimation method are significant, the forest entity will generally receive five years advance notice. If as a result of any of these changes, forest entities received permits in excess of the revised permit limit for their registered forest stand, they will be required to surrender permits. If the changes result in an increase in the permit limit, additional permits will be issued up to this limit.





Note: This diagram is a stylised example provided for the purpose of illustration.

Forests may be grown and maintained for such purposes as climate change mitigation and for other environmental reasons such as rehabilitation of degraded agricultural lands. Forest entities could generate permits for net greenhouse gas removals while these forests are growing. They will have to surrender permits in the event of net greenhouse gas emissions that lead to a change in the permit limit, for example if the land is converted to another non-forest land use.

The blue dashed line represents the permit limit including the risk of reversal buffer. The yellow bars indicate the permits issued.



Note: This diagram is a stylised example provided for the purpose of illustration.

Establishing harvest forests on land previously clear of forest will increase the average carbon sequestered in the landscape over the period that the harvest forest is maintained. Forest entities will be able to generate permits during the initial growing phase and will have to surrender permits for any net emissions that leads to a change in the permit limit, for example if the land is converted to an alternative non-forest land use.

The yellow dashed line represents the permit limit. The blue dashed line marks the risk of reversal buffer. The yellow bars indicate the permits issued.



Figure 6.10: Harvested forest—not re-established

Note: This diagram is a stylised example provided for the purpose of illustration. Scheme participation may involve risks for harvested forests that are not re-established after harvest, because the cost of permit liabilities could be greater than the value of permits previously received for increases in carbon sequestration. The yellow dashed line represents the permit limit. The blue dashed line represents the risk of reversal buffer. The yellow bars indicate the permits issued. The final blue bar indicates the permits that would be surrendered if the forest was not reestablished.

Forest industry stakeholders were also concerned about the introduction of baselines in addition to the 1990 Kyoto Protocol baseline.<sup>26</sup> Some stakeholders argue that applying these baselines means that the full contribution of their forest to Australia's international obligations is not recognised and that this provides an incentive for land-use change. The National Association of Forest Industries (NAFI) noted:

NAFI has serious concerns with the intention that subsequent rotations of forest already established will only receive credits for increases in sequestration beyond the fixed 2008 base year carbon stock. Failure to credit carbon sequestration in subsequent rotations could lead to the highly undesirable and perverse outcome whereby plantation growers choose to relocate their plantations following harvest to receive full credit for sequestration'. (Submission to Discussion Paper: Detailed design issues relating to coverage of reforestation, September 2008 p. 5)

Whether existing harvest forests are abandoned in order to establish new harvest plantations on Kyoto Protocol–eligible land will depend on a range of considerations, including the availability of alternative suitable land, water availability, carbon and timber prices and other market drivers. The Government is aware that some Kyoto Protocol–eligible plantations may not be re-established because of water availability, land suitability or other drivers outside of the Scheme.

Importantly, the inclusion of the 2008 baseline will ensure that there is no perverse incentive to clear forest in 2009 to receive permits for increases in net greenhouse gas removals from forest establishment.

# Carbon Pollution Reduction Scheme

#### Policy position 6.26

The regulator will issue permits up to a limit, incorporating a risk of reversal buffer.

The regulator will issue permits from Scheme commencement once carbon stocks are greater than in 2008.

The regulator will enforce Scheme liabilities for a defined period of time following the issue of the last permit for an individual forest stand.

Forest entities will not be required to surrender more permits than have been issued for an individual forest stand.

# 6.14 Deforestation

Under the Kyoto Protocol rules, Australia is liable for emissions from deforestation (also called 'land clearing'), which is the conversion of forest land to an alternative, non-forest land use. Once land is deforested, sequestration through regrowth and emissions from re-clearing are tracked in the national Kyoto Protocol accounts to determine net emissions from deforestation at the end of the commitment period.

Deforestation currently accounts for around 11 per cent of Australia's emissions though this is declining due to state restrictions on land clearing. Most land clearing is of native forest for agricultural purposes (principally cattle grazing), although deforestation also occurs for other reasons, such as to provide land for urban development and to put in power lines. Existing state restrictions on clearing of 'remnant' or mature forests mean that many projected deforestation emissions after 2007 are from forests that have previously been subject to clearing.

Governments and land managers have taken steps to significantly reduce land clearing rates in the past 20 years to conserve biodiversity and to protect soil and water quality. Department of Climate Change projections are for annual emissions from land clearing of 44 million tonnes of  $CO_2$ -e per year for the 2008–12 period and beyond, down significantly from 132 million tonnes of  $CO_2$ -e in 1990. Figure 6.11 shows the decline in deforestation emissions since 1990 and the projected rate of deforestation over the Kyoto Protocol period.



Figure 6.11: Deforestation emissions 1990–2012

Source: Land Use Change Sector Greenhouse Gas Emissions Projections 2007, Department of Climate Change.

These very significant reductions in land clearing emissions are consistent with Australia's strong international position on reducing emissions from deforestation. In effect, current Australian land clearing restrictions represent an alternative mitigation policy for the sector.

In the Green Paper, the Government proposed not to include emissions from deforestation in the Scheme and indicated that it would explore incentive-based mechanisms to further reduce these emissions.

## **Green Paper position**

After careful deliberation the Government does not propose to include deforestation in the Carbon Pollution Reduction Scheme. Australian deforestation emissions have reduced markedly since 1990, largely due to increased protections against land clearing.

Conservation groups had mixed responses to the proposed exclusion of deforestation from the Scheme. The Australian Conservation Foundation stated:

...that Australia moves to a system of full carbon accounting for all forestry as soon as possible. The polluter pays principle should apply to all forestry and deforestation emissions. This could be applied through the payment of a carbon tax or through coverage under the CPRS once accounting is sufficient. (Submission 809, p. 27)

Other groups suggested that deforestation be excluded from the Scheme but that a fund should be established using revenues from the Scheme to protect native forests for their carbon values, as well as other ecosystem values. Most conservation groups also suggested tightening state land clearing laws to further reduce emissions from the deforestation.

Humane Society International proposed an approach to crediting avoided deforestation:

landholders choosing to not exercise a legal right to remove or degrade vegetation on their land be able to voluntarily opt in to the CPRS permit system in the same way that the Green Paper proposes that landholders choosing to plant trees can opt in. (Submission 368, p. 1)

The circumstances in which landholders are able to obtain land-clearing permits or undertake clearing without the need to obtain government approval vary from state to state. The proposed approach could create perverse incentives for landowners to apply for land-clearing permits when they would not otherwise have done so. Further, some land managers may have only a conditional right to clear land in limited circumstances. Conditional rights could not be recognised for the purpose of crediting avoided deforestation. Keeping the above factors in mind, the Government will give this proposal further consideration.

Forest industry groups generally supported the Government's preferred approach to deforestation. The joint forest industry endorsed:

the approach contained in the Green paper to exclude deforestation from the CPRS, given Australia's comprehensive regulatory framework applying to land clearing. (Submission 565, p. 4)

After careful consideration, the Government does not consider it practical to include deforestation emissions in the Scheme.

The areas cleared annually on individual landholdings range from less than one hectare to thousands of hectares. Depending on the thresholds for inclusion in the Scheme, covering deforestation could create thousands of potentially liable entities, as there are no obvious points of obligation elsewhere in the supply chain.

The need for thresholds to contain Scheme costs would mean that a significant proportion of deforestation would not be covered. Around eight million tonnes  $CO_2$ -e of projected emissions is attributable to the clearing of relatively small land areas under exemptions to state land-clearing restrictions, for example to establish firebreaks. Clearing is also undertaken to provide fodder in times of drought. It may not be efficient to impose Scheme obligations for clearing that occurs under such circumstances. The ambit of existing state restrictions on clearing of remnant or mature forests means that most of the balance of emissions is from forests defined as regrowth.

Monitoring, reporting and compliance arrangements would be complicated by the periodic nature of deforestation. Unlike emissions from industrial facilities, emissions from deforestation are difficult to predict.

Announcing plans to include emissions from deforestation in the Scheme would also create powerful incentives for pre-emptive land clearing if coverage was in prospect (where allowed under state and territory regulations) to avoid a future obligation. This could have a range of negative environmental consequences, as well as increasing emissions in the Kyoto Protocol period.

Given the potential to reduce deforestation emissions at low-cost, the Government will continue to investigate incentive-based mechanisms, including offsets, to further reduce emissions from deforestation.

## Policy position 6.27

The Government will not include deforestation in the Scheme.

# 6.15 Offsets

Offset credits could potentially be created by those sectors not covered by the Scheme.

Offset credits are rewards for reductions in emissions measured against an assumed baseline. Offset Schemes are administratively complex and require considerable judgement to determine baselines—'what would have happened in the absence of the offset project'. Determining these baselines is inherently subjective, increasing the risk that the Scheme does not promote genuine abatement.

Scheme offsets could be used interchangeably with pollution permits and would, therefore, need to meet internationally recognised standards. These require that offsets are only issued for abatement that is measurable, has actually occurred, is additional to business-as-usual and is permanent (that is, is not subsequently reversed). Offsets therefore involve relatively high compliance costs both to project proponents and to the Scheme regulator, for approving, monitoring and verifying each offset project to ensure that abatement meets the required standards.

Domestic offsets could only come from emissions sources that are outside the Scheme. The very broad sectoral coverage proposed for the Scheme means that there is inherently less scope to pursue offset activities. Further, the Government has indicated that, where practical, it will apply alternative mitigation measures to sources of emissions that can not be covered or are likely to remain outside the Scheme for an extended period of time (see Section 6.3 on the general approach to coverage and Section 6.12 on coverage of agriculture emissions). Offsets could only be issued for abatement that is additional to such measures. The scope for domestic offsets from uncovered sources is, therefore, likely to be very limited.

Nevertheless, some emissions sources would probably remain outside the Scheme. For example, it would be difficult to cover or apply alternative mitigation measures to emissions from savanna burning because the complexity of property rights for Indigenous lands would make it difficult to identify single commercial entities that could be made liable for these emissions.

Domestic offset projects would not add to total national abatement because offsets would be issued in addition to the Scheme cap and would therefore allow an increase in emissions within the Scheme. In other words, offset projects outside the Scheme would allow less abatement to be done within the Scheme and, other things being equal, would reduce the price of permits. However, the cost of reducing emissions would still be borne by firms whose emissions were covered by the Scheme.



In the Green Paper, the Government proposed to consider the scope for offsets from other emissions sources in 2013 following final decisions on coverage of agriculture emissions.

## **Green Paper position**

The Scheme would not include domestic offsets from agriculture emissions in the period prior to coverage of these emissions.

The Government would consider the scope for offsets from emissions sources that could not be included in the Scheme in 2013, following final decisions on coverage of agriculture emissions.

The Government is committed to facilitating the participation of Indigenous land managers in carbon markets and would consult with Indigenous Australians on the potential for offsets from reductions in emissions from savanna burning and forestry opportunities under the scheme.

A number of stakeholders argued for offsets from agriculture, particularly soil carbon sequestration through crop and pasture management practices and the addition of biochar to soils. Many stakeholders also acknowledged that the science of biochar sequestration is not fully developed.

The Northern Territory Government supported investigation of offsets from reductions in savanna burning, but recognised that further work is required on scientific and methodological issues still had to be resolved. The Government consulted Indigenous representatives in the development of the Green Paper, including the Message Stick Carbon Group and the North Australian Indigenous Land and Sea Management Alliance. The Government intends to conduct a national workshop in the first half of 2009 with Indigenous representatives from around the country to discuss issues relating to Indigenous engagement in the Scheme.

The Government will facilitate the participation of Indigenous land managers in carbon markets and will consult with Indigenous Australians on the potential for offsets from reductions in emissions from savanna burning and forestry opportunities under the Scheme.

The Government has indicated that it will consider in 2013 whether to cover agricultural emissions from 2015 and will consider the scope for offsets at the same time. There is not sufficient time to allow for offsets from agriculture in the period prior to 2015.

Voluntary carbon market participants—that is, firms and individuals that voluntarily buy abatement (usually in the form of carbon offsets)—can trade in offsets that are not recognised under the Scheme. The Government will establish a standard for offsets for the voluntary market. Participants in the voluntary carbon market could also purchase and retire carbon pollution permits. Chapter 7 includes an assessment of who could buy permits and whether permits can be voluntarily retired.

#### Policy position 6.28

The Government will consider the scope for domestic offsets in 2013.

The Scheme will not include domestic offsets from agriculture emissions in the period prior to coverage of these emissions.

The Government will facilitate the participation of Indigenous land managers in carbon markets and will further investigate the potential for offsets from reductions in emissions from savanna burning and will consult with Indigenous Australians on forestry opportunities under the Scheme.

Some greenhouse gases are not covered by the Kyoto Protocol: hydrochlorofluorocarbons (HCFCs), which are controlled under the Montreal Protocol, and volatile organic compounds (VOCs), which are emitted as gases from certain solids or liquids, such as paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials, furnishings and office equipment. Water vapour is not covered by the Kyoto Protocol because it is not human induced.

<sup>2</sup> Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

<sup>3</sup> Department of Climate Change, National Greenhouse Gas Inventory, 2006.

<sup>4</sup> Department of Climate Change, National Greenhouse Gas Inventory, 2006.

<sup>5</sup> Department of Climate Change, *National Inventory Review 2006*.

<sup>6</sup> Department of Climate Change, National Greenhouse Gas Inventory, 2006.

<sup>7</sup> Department of Climate Change, National Greenhouse Gas Inventory, 2006.

<sup>8</sup> Dargay, Joyce and Gately, Dermot, *The demand for transportation fuels: imperfect price-reversibility?, Transportation Research Part B: Methodological*, Volume 31, Issue 1, 1997.

<sup>9</sup> An international voyage means a voyage where either the port of embarkation or the port of disembarkation is not within Australia.

<sup>10</sup> In effect, scheme obligations will be applied to large fuel users and to other categories of fuel users via a requirement that they apply for and use an obligation transfer number when purchasing fuel.

- 11 Although note that upstream suppliers can refuse to provide fuel free of a carbon price in some circumstances.
- 12 Intergovernmental Panel on Climate Change, *Good Practice Guidance*, 1996.
- 13 Department of Climate Change, National Greenhouse Gas Inventory, 2006.
- 14 Department of Climate Change, National Greenhouse Gas Inventory, 2006.
- 15 Department of Climate Change, National Inventory Review, 2006.
- 16 Department of Climate Change, National Greenhouse Gas Inventory, 2006.
- 17 Hyder Consulting, Assessment of Landfill Legacy Issues, October 2008.
- 18 Hyder Consulting, Assessment of Landfill Legacy Issues, October 2008.
- 19 Hyder Consulting, Options for covering waste facilities under an emissions trading scheme, June 2008.
- 20 Department of Climate Change, National Greenhouse Gas Inventory, 2006.
- 21 Department of Climate Change, National Greenhouse Gas Inventory, 2006.
- 22 The Kyoto Protocol rules define 'afforestation' as well as 'reforestation'. Both terms refer to the establishment of forest since 1990 on land that was previously clear of forest.
- 23 National Water Initiative: http://www.nwc.gov.au/nwi/index.cfm#overview.
- 24 National Water Initiative: http://www.nwc.gov.au/nwi/index.cfm#overview.
- 25 GHG Offset Services, Average Crediting of Reforestation Permits Under the CPRS, September 2008.
- 26 Scheme permits will only be issued for increases in net greenhouse gas removals from scheme commencement in 2010 once forest carbon stocks are greater than in 2008.

# 7 Reporting and compliance

This chapter outlines the key reporting and compliance obligations that will fall on liable entities under the Carbon Pollution Reduction Scheme (the Scheme). It deals with how liable entities will be defined under the Scheme, the monitoring and reporting of emissions, audit, appropriate record keeping, the surrender of eligible permits and the enforcement provisions that will apply if entities do not meet their obligations under the Scheme.

A credible and robust Scheme will depend on strong monitoring, reporting, audit and compliance provisions. In submissions to the Green Paper, this was widely recognised by stakeholders. The Energy Supply Association of Australia (ESAA), for example, stated:

For the Scheme to operate efficiently, market participants will need to have confidence in the accuracy of emissions reported and have timely access to the compliance data. (Submission 715, p. 14)

This chapter lays out the Government's framework for reporting and compliance that will support the effective operation of the Scheme:

- Section 7.1 outlines the Scheme's relationship with the National Greenhouse and Energy Reporting System.
- Section 7.2 defines who will be the legal entity liable for obligations arising from a covered facility under the Scheme.
- Section 7.3 outlines key monitoring provisions for emissions under the Scheme.
- Section 7.4 outlines reporting provisions for emissions under the Scheme.
- Section 7.5 outlines provisions relating to the audit of emissions under the Scheme.
- Section 7.6 describes the compliance process and timeline for the surrender of eligible emission permits under the Scheme, and the enforcement provisions that will be instituted to ensure compliance with the Scheme.
- Section 7.7 describes the role of the national registry in supporting the key elements of the Scheme.

# 7.1 The National Greenhouse and Energy Reporting System

The *National Greenhouse and Energy Reporting Act 2007* (NGER Act) provides a national framework for the reporting and audit of information related to greenhouse gas emissions, energy consumption and energy production. The NGER Act will underpin the Scheme,

providing the primary source of emissions data on which obligations under the Scheme will be based.

To streamline processes for liable entities under the Scheme, it will be important to use, to the maximum extent possible, the National Greenhouse and Energy Reporting System (NGERS) to report and measure energy and emissions data. In the Green Paper the Government expressed the following preferred position.

## **Green Paper position**

The National Greenhouse and Energy Reporting System would be the starting framework for monitoring, reporting and assurance under the Scheme, but certain elements of it will be strengthened to support the Scheme.

Stakeholders strongly supported the proposal that NGERS provide the framework for monitoring, reporting and assurance under the Scheme. ExxonMobil Australia Pty Ltd, for example, stated:

ExxonMobil supports the use of NGER as the starting framework for emissions monitoring and assurance under the emissions trading Scheme, as its goal is to streamline reporting into a consistent framework and therefore overcome duplication between the state and federal levels. (Submission 254, p. 8)

Stakeholders also generally supported strengthening specific elements of NGERS to support the Scheme, recognising that direct financial obligations will arise under the Scheme as a result of emissions reporting. Chevron Australia noted that while the NGERS framework could be used as the starting framework for reporting and assurance under the Scheme, elements may need to be strengthened to accommodate the financial assurance required under the Scheme. (Submission 716, p. 27)

The specific NGERS provisions to be strengthened in legislation to support the Scheme are outlined in this chapter.

## Policy position 7.1

The National Greenhouse and Energy Reporting System will be the starting framework for monitoring, reporting and assurance under the Scheme. Specific elements of the National Greenhouse and Energy Reporting System will be strengthened to support the Scheme.

# 7.2 Defining the liable entity

In general, there will be two categories of liable entities under the Scheme, those liable for a facility that directly produces emissions above a certain threshold, and those entities that are specifically defined as upstream liable entities (for example, upstream suppliers of liquid fuels). This section deals with the identification of liable entities in relation to facilities that directly emit above a certain threshold. Where Scheme obligations are placed on upstream entities, Chapter 6 sets out the point in the supply chain where these obligations will fall.

# 7.2.1 Operational control over covered facilities

The Green Paper discussed a number of approaches to determining which entity would be liable for Scheme obligations arising from a covered facility. These approaches included:

• an 'operational control' test as defined under the NGER Act

or

• a 'financial control' test where Scheme obligations would fall on entities which have the ability to direct the financial and operating policies of the facility with a view to gaining economic benefits from its activities.<sup>1</sup>

In the Green Paper, the Government set out that the key principles guiding the design of the Scheme will be simplicity, transparency and ease of implementation for both industry and government. Conscious that entities have already begun organising emission reporting systems around an operational control approach as defined in the NGER Act, the Government expressed the preference in the Green Paper that the NGER operational control approach would also apply for the determination of liability under the Scheme.

#### **Green Paper position**

Entities with operational control over covered facilities or activities would be liable for emissions obligations arising from those facilities or activities under the Scheme.

Submissions generally supported the approach proposed in the Green Paper that operational control would be used to allocate emissions obligations arising from a covered facility based on consistency with the NGERS framework and given the extensive industry input that has occurred to date in establishing NGERS. For example Origin Energy noted:

Origin supports the position that in general, entities with operational control over covered facilities or activities would be liable for emissions obligations under the Scheme. (Submission 815, p. 47)

The Investment and Financial Services Association (IFSA) also stated:

Consistent with the current reporting obligations under the National Greenhouse and Energy Reporting System, IFSA is supportive of the Government's preferred position to adopt an operational control approach to allocate obligations under the scheme. (Submission 338, p 6)

A small number of stakeholders made separate proposals that the Scheme should take an equity share approach to allocating obligations for covered facilities under the Scheme as they propose that this would best reflect private commercial arrangements and align with financial reporting requirements. The Australian Industry Greenhouse Network (AIGN) noted:

AIGN's main concern is with the use of NGERS reporting liability definitions for ETS acquittal liability. In summary, the ETS liabilities need to be aligned with the taxation law definitions of corporate liability. This means that the guiding rule for liability

should be equity ownership of the operations rather than operational control. (Submission 424, p. 9)

An equity share approach to apportioning obligations under the Scheme would amount to a departure from the operational control approach taken under the NGERS framework, to which entities are currently adapting for the purposes of emissions and energy reporting. Further, such an approach would significantly increase administrative complexity and raise implementation risks for the Scheme. Therefore, the Government does not support an equity share approach to allocating obligations under the Scheme.

The Government notes that in the majority of circumstances the same entity will have operational and financial control over a facility, and that in most cases, entities who will be allocated emissions obligations arising from a covered facility under the Scheme are currently using the operational control approach under NGERS. As such, in line with the Government's preferred position in the Green Paper, operational control will be the standard test for allocating obligations for emissions from a covered facility under the Scheme. This means that Scheme obligations will be placed on the entity that has the greatest ability to introduce and implement operational decisions for a covered facility.

## Policy position 7.2

In general, an operational control test will be used to allocate emissions obligations arising from a covered facility. Exceptions to this rule are set out in section 7.2.2 below.

# 7.2.2 Exceptions to the operational control test

Some stakeholders did not agree that an operational control test should be used to allocate obligations in all cases under the Scheme. In the mining sector, where the entity with operational control of a facility is often different to the entity with financial control, some stakeholders argued in their submissions that the proposal to impose liability on the basis of operational control would place liability on an entity that does not derive the financial rewards from a facility. This was also raised in submissions from the pipeline industry where pipeline owners frequently contract out the operation of gas transmission pipelines to pipeline operators (Australian Pipeline Industry Association, Submission 584, p. 9).

In general, these submissions argued that an operational control approach to allocating obligations under the Scheme is not always appropriate in these sectors because the entity with financial control over the facility (that is, the entity that has the ability to direct the financial and operating policies of the facility with a view to gaining economic benefits from its activities) has the greatest influence over emissions arising from a covered facility. Stakeholders in these sectors requested that the Government show some flexibility where operational and financial control of a facility are held by different entities, by providing the opportunity for the entities to determine amongst themselves who will take on liability under the scheme (Leighton Holdings, Submission 402, p. 19; Babcock and Brown, Submission 489, p. 3).

The Government needs to balance the benefit of allowing greater flexibility with the potential costs associated with additional complexity and the risk of gaps in coverage. Balancing these considerations, the Government will provide some flexibility to shift Scheme obligations to the entity with financial control with the approval of the Scheme regulator. The Scheme

regulator will allow entities with financial control over a covered facility to take on Scheme liabilities where the following criteria are met:

- 1. both the transferee and the transferor agree to the transfer of liability under the Scheme; and
- 2. a single entity takes on Scheme obligations for a given facility (that is multiple parties could not take on obligations for a single covered facility); and
- 3. the entity taking on obligations under the Scheme agrees to accept responsibility for emissions reporting for that facility; and
- 4. the entity that is taking on obligations can demonstrate its capacity to obtain information to satisfy its reporting requirements under the NGER Act; and
- 5. the Scheme regulator is satisfied that the entity taking on Scheme obligations has the capacity to meet the liability; and
- 6. the entity taking on the liability is incorporated in Australia; and
- 7. the entity taking on Scheme obligations agrees to do so for a minimum of four years.

## Policy position 7.3

With the approval of the Scheme regulator, entities with financial control over a covered facility will have some flexibility to take on Scheme liabilities where specified criteria are met.

In cases where the Scheme regulator approves a transfer of liability to an entity with financial control over a covered facility, the entity taking on liabilities under the Scheme will also be required to take on reporting obligations for that facility under NGERS.

# 7.2.3 Liability of controlling corporations

In the Green Paper, the Government proposed that a controlling corporation would be the liable entity under the Scheme where either the controlling corporation, or a member of the controlling corporation's group, has control over a covered facility. The Government expressed this preference to reduce compliance costs and implementation risks for corporations and the Government by reducing the number of liable entities under the Scheme.

## **Green Paper position**

For corporations, obligations would be placed on the controlling corporation of a company group where a member of the group, which includes the controlling corporation, has operational control over a covered facility or activity.

This proposal is consistent with the NGER Act, which imposes reporting obligations on controlling corporations of a corporate group, where a controlling corporation is generally the corporation at the top of the corporate hierarchy in Australia. Corporate grouping in this way also provides increased surety for the Scheme as the controlling corporation is likely to have

greater access to funds and will therefore have a greater ability to meet its Scheme liability than an individual corporation with a single facility might otherwise have.

Most stakeholders did not comment on the proposal for grouping of liability under the controlling corporation. Therefore, the Government confirms that, as a general rule, a controlling corporation will be the liable entity under the Scheme where a member of the controlling corporation's group, has control over a covered facility. Some exceptions to this position are set out in section 7.2.4 below.

The entities that will form the controlling corporation's group include the controlling corporation and its subsidiaries.

## Policy position 7.4

In general, Scheme obligations will fall on the controlling corporation of a corporate group where either the controlling corporation or a member of the controlling corporation's group has control over a covered facility.

Entities included in the controlling corporation's group will include the controlling corporation and its subsidiaries.

# 7.2.4 Liability of subsidiaries

A small number of stakeholders did express a preference that, in some cases, a member of the controlling entity's group other than the controlling corporation, should be able to take on liability for the obligations arising from a covered facility (Origin Energy, Submission 815, p. 46). These stakeholders argued that in some cases placing Scheme obligations on the controlling corporation would significantly impair the ability of some parties to pass through carbon costs in existing contracts and convey efficient price signals to end users (note that broader issues relating to the pass through of carbon costs are discussed in Chapter 15).

The Government recognises the potential for pre-existing contracts to inhibit appropriate economic and environmental outcomes in the transition to the Scheme. In general, the Government does not want to impede mutually agreed solutions to transitional difficulties. Therefore, with the approval of the Scheme regulator, controlling corporations will have some flexibility to shift Scheme obligations to a subsidiary within their group provided that criteria in section 7.2.2 are met, and with the caveat that Scheme obligations would revert back to the controlling corporation if the subsidiary fails to meet its obligations under the Scheme.
With the approval of the Scheme regulator, controlling corporations will have some flexibility to shift Scheme obligations to another legal entity within their group where certain criteria are met, and with the caveat that Scheme obligations would revert back to the controlling corporation if the subsidiary fails to meet its obligations under the Scheme.

In cases where the Scheme regulator approves a transfer of liability for a covered facility to another entity within a controlling corporation's group, the entity taking on liabilities under the Scheme will also be required to take on reporting obligations for that facility under NGERS.

# 7.2.5 Government entities

The Government outlined in the Green Paper that government organisations would be liable under the Scheme for any covered emissions, but it did not outline the point of liability for these organisations.

Liability will apply to Commonwealth, state and territory governments where they have operational control over a covered facility. For instance, if a Federal government department had operational control over a covered facility, the Commonwealth would be the liable entity. Liability will also apply to Commonwealth, State or Territory statutory corporations and local councils.

#### Policy position 7.6

Liability will apply to Commonwealth, state and territory governments, statutory corporations and local councils where they have operational control over a covered facility.

# 7.2.6 Unincorporated joint ventures

In some emission producing industries, unincorporated joint ventures are commonly utilised to provide for the joint management of risks and rewards arising from a project. The parties to such agreements often contribute differing levels of funding and expertise to a project depending on the terms of the specific agreement.

In the Green Paper, the Government expressed the preference that covered facilities operated by unincorporated entities would attract liabilities under the Scheme. However the Green Paper did not discuss how this general approach would apply to specific commercial arrangements such as unincorporated joint ventures.

Typically, unincorporated joint venture arrangements are governed by a contract known as a Joint Operating Agreement. Under this agreement, the participants generally appoint an 'operator' to manage and undertake joint venture activities on behalf of the parties to the joint venture agreement. While the 'operator' is normally nominated to undertake and be responsible for the day-to-day running of the project, the joint venture participants usually meet costs and obligations incurred by the operator in relation to a facility according to the proportions set out in the Joint Operating Agreement.

A small number of submissions from the petroleum production and exploration industry, specifically commented on the point of liability for unincorporated joint venture arrangements. Submissions from this industry highlighted that the way in which joint ventures would prefer to discharge their obligations under the Scheme will vary on a case by case basis. Some joint ventures would prefer to have the operator purchase and surrender permits on behalf of joint venture participants, whereas in other instances, individual joint venture participants may prefer to meet their share of obligations independently (Australian Petroleum Production and Exploration Association (APPEA), Submission 834, p. 31).

As set out in section 7.2.1, the general approach under the Scheme is that the operational control test will be used to allocate emissions obligations arising from a covered facility. In the case where facilities are governed by unincorporated joint venture agreements, the 'operator' of the facility is likely to be the entity with operational control, and hence be the liable entity under the Scheme. While the entity with operational control will be the liable entity under the Scheme, the participants to joint operating agreements will also be free to break up the task and cost of purchasing compliance permits according to their specific agreements. The entity with operational control will still be liable to surrender the correct number of compliance units for the covered facility, but it could effectively do so with contributions from the other joint venture participants. This approach is consistent with the general approach taken under joint operating agreements whereby the costs incurred by an 'operator' in relation to project are split between the participants according to their private agreement.

The way in which different joint ventures approach the task of purchasing compliance permits is likely to vary on a case by case basis. Accordingly, private contract arrangements between the participants are likely to be more flexible and aligned to the specific needs of the parties than the alternative of the Government attempting to define an across the board rule in legislation. Such a rule would invariably be inappropriate for some arrangements, possibly requiring further special rules and additional complexity.

Where a single legal entity does not have operational control over the facility, the legislation establishing the Scheme will include provisions to require a single legal entity to be nominated by the participants to the joint venture to meet obligations under the Scheme.

Where a covered facility is operated under an unincorporated joint venture agreement, the legal entity with operational control over the facility will be the liable entity under the Scheme.

• The participants to unincorporated joint venture agreements will be free to break up the task and cost of purchasing compliance permits according to their specific agreements, with the entity with operational control being finally liable to surrender the correct number of compliance units for the covered facility.

If a single legal entity does not have operational control over a covered facility, a single legal entity will be required to be nominated by the participants to the joint venture to meet Scheme obligations.

# 7.2.7 Trusts, partnerships and unincorporated associations

The Government's preferred position in the Green Paper was that other unincorporated entities, such as trusts, partnerships or unincorporated associations, would be liable under the Scheme if they have operational control over a covered facility.

#### **Green Paper position**

Unincorporated entities would also be liable under the scheme if they have operational control over a covered facility or activity.

Few submissions commented on this point. In keeping with the general approach taken under the Scheme, where a single legal entity is identified as having operational control over a covered facility, that entity would be the liable entity under the Scheme. If a single legal entity does not clearly have operational control over a covered facility, a single legal entity (a trustee, partner or member of the management committee of an unincorporated association) will be required to be nominated to meet Scheme obligations.

#### **Policy position 7.8**

Where a single legal entity is identified as having operational control over a covered facility, that entity would be the liable entity under the Scheme.

If a single legal entity does not have operational control over a covered facility, a single legal entity (a trustee, partner or member of the management committee of an unincorporated association) will be required to be nominated to meet Scheme obligations.

# 7.2.8 Liability for part year

Where an entity has obligations under the Scheme in relation to a facility for only part of a financial year, the entity's obligations will be determined on a pro-rata basis. This pro-rata approach will apply when a facility commences operations, ceases operations or the liable entity changes part way through a compliance year.

Where an entity has obligations under the Scheme in relation to a facility for a number of, but not all days in a financial year, that entity's obligations under the Scheme will be determined on a pro-rata basis.

In applying the pro-rata approach, the Scheme regulator will also have discretion to consider the actual pattern of annual emissions.

# 7.3 Monitoring

Under the Scheme, all liable entities will be required to monitor their emissions according to defined methodologies to determine their emissions each year and to keep appropriate documentation and records to enable reported emissions to be audited.

The Green Paper noted that emissions monitoring and estimation can take several forms, from the use of observable activity data to estimate emissions, to site-specific sampling, through to direct measurement of emissions. The classes of methodologies available for use under NGERS are set out in the box below.

#### Box 7.1: 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 when preparing the National Greenhouse Accounts. The use of methodologies from the National Greenhouse 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 emission factors in the estimation of emissions. These emission factors are national average factors determined by the Department of Climate Change using the Australian Greenhouse Emissions Information System.

# 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 2 also draws on existing technical guidelines used by reporters under the Generator Efficiency Standards program.

#### Box 7.1: Classes of methodologies available for NGERS (continued)

# 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) and documentary standards for analysing fuels.

# Method 4: direct monitoring of emission 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. While this approach can provide a higher level of accuracy, depending on the type of emission process, it is more data-intensive than other approaches.

As for Methods 2 and 3, a substantial body of documented procedures on monitoring practices and state and territory government regulatory experience provides the principal source of guidance for the establishment of the system proposed under Method 4.

Adopting NGERS as the starting framework for monitoring and estimating emissions under the Scheme, and noting that the NGERS methodologies conform to international obligations and Australia's National Greenhouse Accounts, in the Green Paper the Government put forward the following preferred position.

#### **Green Paper position**

Emissions estimation methodologies under the scheme would be those available under the National Greenhouse and Energy Reporting System.

Stakeholders strongly supported adopting the NGERS methodologies for emissions reporting under the Scheme.

The NGERS methodologies will provide an important link between emissions reported under the Scheme and those reported under Australia's National Greenhouse Gas Inventory, ensuring that emissions reporting under the Scheme is consistent with Australia's international reporting obligations. The Scheme's use of NGERS methodologies will also ensure reporting continuity for liable entities, easing their compliance costs and ensuring that learning from the first years of NGERS is not lost.

A key element of the NGERS framework is to provide choice for reporting entities in selecting emissions estimation methodologies from among those set out under NGERS. Stakeholders also supported retaining this flexibility wherever possible, allowing entities to determine the most cost-effective method to meet their reporting requirements under the Scheme. Allowing reporters to choose the method they will use to estimate emissions enables them to balance the costs of using the higher methods (Methods 2 and above) against the

benefits of potentially improved emission estimates. In most cases, the choice of methodology available to reporting entities under NGERS will be retained under the Scheme.

The NGER Act does not currently require the reporting of all emissions or sinks that will be covered by the Scheme. The legislative package introducing the Scheme will require that emissions data from all sources and sinks covered by the Scheme be reported to the Scheme regulator.

Emissions-related information relating to entities that will have obligations under the Scheme but not currently required to be reported under NGERS includes:

- quantities and emissions associated with synthetic greenhouse gases that are produced, imported and exported
- quantities of fuels (such as coal, gas, liquid fuels) supplied to other entities by upstream suppliers (coal mines, gas producers, fuel excise and customs duty remitters) (see Chapter 6)
- net changes in forest carbon sequestration and other relevant information, such as forest management plans, relating to forestry operations that elect to opt into the Scheme—at present NGERS does not provide a methodology to report net changes in carbon sequestered in forests (see Chapter 6)
- emissions information relating to entities who will have obligations under the Scheme but are not constitutional corporations, such as unincorporated entities, some government organisations and individuals.

Some entities that will have obligations under the Scheme but are not currently obliged to report under NGERS already report their energy or emissions information to the Government for other purposes. In particular, importers of synthetic greenhouse gases and suppliers of liquid fuels currently report relevant data to the Government under existing ozone protection and fuel excise legislation. Recognising this, the Government expressed a preferred approach in the Green Paper that, to lower the compliance burden on reporting entities, the reporting of energy and emissions information under the Scheme would be aligned with existing regimes to the maximum extent possible. Section 7.3.3 discusses the streamlining of reporting for upstream fuel suppliers and the methodologies to be used for these entities.

Methodologies for reporting net changes in carbon sequestered from forestry operations will be built into the National Greenhouse and Energy Reporting (Measurement) Determination 2008 (NGER Measurement Determination) on reporting methodologies to facilitate the reporting of forestry information under the Scheme (see also Chapter 6).

The NGER Act will also be amended to require the reporting of emissions information for entities that are not corporations. These amendments will expand the NGER Act to cover all entities that may have obligations under the Scheme.

Emissions estimation methodologies under the Scheme will be those set out under the National Greenhouse and Energy Reporting System.

The legislative package introducing the Scheme, including consequential amendments to the *National Greenhouse and Energy Reporting Act 2007*, will require that emissions data on all sources and sinks to be covered by the Scheme be reported to the Scheme regulator.

# 7.3.1 Methodologies at commencement

In general, 'higher order' methods are likely to produce more accurate estimates of emissions at the facility level than the 'lower order' methods, but also generally entail higher compliance costs for reporting entities. More accurate reporting of emissions under the Scheme will generally lead to the more efficient operation of the Scheme and greater fairness by ensuring that entities face liabilities in line with their actual emissions.

Notwithstanding the importance of allowing reporting entities to make their own judgments in balancing the costs of using 'higher order' methods against the benefits of potentially improved emission estimates, in the Green Paper the Government proposed limiting the number of methodologies available for estimating certain emission sources under the Scheme.

Recognising the tension between the accuracy of emission reporting and compliance costs for liable entities, in the Green Paper, the Government proposed that Method 2 or above would only be imposed as the minimum to be used from the commencement of the Scheme where those methodologies are already in widespread use throughout industry.

#### **Electricity generation**

Under NGERS, electricity generators that meet certain thresholds are required to estimate carbon dioxide emissions from the combustion of coal and gas using NGERS Methods 2-4. This requirement reflects widespread commercial practice in the sector and requirements in place under the Australian Government's Generator Efficiency Standards program. The Government noted this when setting out its preferred position in the Green Paper.

#### **Green Paper position**

The measurement and reporting of electricity sector emissions (as required for the National Greenhouse and Energy Reporting System and the Generator Efficiency Standards program) would have minimum standards for emissions estimation methodologies imposed from the commencement of the scheme.

Submissions did not oppose the continuation of the use of Method 2 as the base level for reporting of emissions, as is the current arrangement under NGERS. In its submission to the Green Paper, Alcoa noted:

As it stands, Alcoa's power plants (refineries and Anglesea) are already included in the Department's Generator Efficiency Standards program, so [they] already use Method 2—a higher order method, for electricity emission factor determination. Alcoa

does not object to the CPRS 5.7 requirement that Method 2, where used should continue to be used for a minimum period of four years. (Submission 740, p. 36)

Therefore, in line with the Government's preference in the Green Paper, electricity generators monitoring and reporting carbon dioxide emissions that are covered under the Scheme will be required to use Methods 2–4.

#### Policy position 7.11

Electricity generators will be required to use National Greenhouse and Energy Reporting System Methods 2–4 for estimating and reporting carbon dioxide emissions that are covered under the Scheme (as required for the National Greenhouse and Energy Reporting System and the Generator Efficiency Standards program).

#### Perfluorocarbon emissions

Perfluorocarbon (PFC) emissions from the aluminium sector are currently estimated using facility-specific estimation methodologies consistent with widespread business practice. Aggregated sector estimates voluntarily provided to the Australian Government using these methodologies are used to inform the National Greenhouse Accounts. Noting these existing practices, the Government set out its preferred position in the Green Paper.

#### **Green Paper position**

The measurement and reporting of perfluorocarbon emissions (from aluminium production, as is current business practice and used for the National Greenhouse Accounts) would have minimum standards for emissions estimation methodologies imposed from the commencement of the scheme.

Very few submissions commented on the reporting of PFC emissions from aluminium smelting using Method 2 or above. Given continuing industry practice, liable entities reporting PFC emissions will be required to use Method 2 or above in line with the Government's preference in the Green Paper.

#### Policy position 7.12

Liable entities reporting PFC emissions from aluminium smelting processes will be required to use National Greenhouse and Energy Reporting System Methods 2–4 for estimating these emissions under the Scheme.

#### **Underground coal mines**

Underground coal mines are currently required by state regulators to monitor emissions via direct monitoring methods for the purposes of state-based occupational health and safety regulations. These methods are analogous to direct reporting requirements of NGERS Method 4, set out under the NGER Measurement Determination. A number of major companies also publicly report directly monitored emissions data in their annual reports. These data are also used to inform the National Greenhouse Accounts. The Government noted this in arriving at its preferred position in the Green Paper.

#### **Green Paper position**

The measurement and reporting of fugitive emissions from underground coal mines (as currently mandated by state safety regulations for most mines) would have minimum standards for emissions estimation methodologies imposed from the commencement of the scheme.

Submissions generally recognised the adaptability of measurement technologies currently in place for health and safety reporting to meet reporting requirements under the Scheme. The Australian Coal Association stated:

Of course, measurement of emissions for underground mines is more practical as we can directly measure emissions while mining. (Submission 530, p. 9)

In recognising this, some submissions noted that existing technologies would benefit from development to increase their accuracy by better measuring emission flow rates from underground coal mines (Xstrata, Submission 593, p. 15). Other submissions noted the considerable variation between mines in the application of these measurement methodologies, with resulting differences in the accuracy of measurement practices.

The Government recognises that continual improvement in the accuracy of emission estimates from underground mines and the consistent application of measurement equipment are important to ensure equality of measurement standards across the industry. However, existing monitoring technologies in place under state-based health and safety regulations are sufficient to comply with Method 4 methodologies for periodic monitoring of emissions as set out in the NGER Measurement Determination. These techniques provide relatively accurate measurements for reporting under the Scheme.

To ensure consistent application of methods across the industry, the Government has established a working group to work with the coal industry between now and mid-2009 to develop detailed guidelines on the application of emissions estimation methodologies. These guidelines will be consistent with the methods set out in the NGER Measurement Determination and aim to standardise the application of estimation methods across the industry to provide certainty to liable entities about their reporting obligations.

Industry submissions also sought clarity on how the Scheme would deal with uncertainty of emissions estimates. The Government canvassed the option of specifying target uncertainty ranges for the estimation of emissions in the Green Paper, but did not prefer this approach at Scheme commencement, as to do so would require it to specify rigorous methods for calculating uncertainty (which adds complexity) or to require participants to self-estimate uncertainty (which might reduce transparency).

In the lead-up to the commencement of the Scheme, the Government will continue to work with the industry to elaborate guidance on the application of higher order measurement methods and measurement uncertainty issues.

Entities reporting fugitive emissions from underground coal mines will be required to use National Greenhouse and Energy Reporting System Methods 2–4 for the estimation of emissions under the Scheme.

#### Solid waste landfills

Emissions from solid waste at different sites depend on factors such as historical waste volumes, organic composition, site management practices, environmental conditions (geographical location) and the oxidation of methane in the landfill. Current NGERS methods available for estimating emissions from landfill sites provide for measurement based on industry average methods (Method 1) or facility-specific estimation of emissions using NGERS Methods 2 and 3. Submissions from the waste sector commented broadly on the accuracy of NGERS emission estimation methodologies and on whether minimum level methodologies should be set for use in estimating emissions from the sector.

While some submissions implied preferences for site-specific methods (NGERS Methods 2 and 3) due to their ability to better represent site-specific emissions (Thiess Services, Submission 229), views differed across the industry. For example, SITA Environmental Solutions stated:

The waste industry has debated at length whether a simple proxy measure (a simplified Method 1) or the more complicated FODM (Methods 1–3) will give a more accurate or at least fairly allocated emission liability. There is little consensus. (Submission 406, p. 2)

In its submission to the Green Paper, the NSW Government proposed a simplified method for the estimation of emissions from waste landfills (Submission 903). The proposed methodology was a variation on NGERS Method 1, which would set default factors for waste streams entering landfills. This approach would lead to the equal treatment of new waste deposited at landfill sites around Australia, however it would also amount to reduction in the facility-level accuracy of reporting currently provided for under the NGERS methodologies. Such an approach would also amount to a departure from the principle that facility-level accuracy of emissions information should increase under the Scheme over time. For these reasons, this approach is not supported by the Government.

As discussed in Chapter 6, the waste sector also raised concerns over the coverage of emissions arising from past waste streams deposited at solid landfill sites ('legacy emissions'). As set out in Chapter 6, an allowance for legacy emissions from solid waste deposited at landfill sites will be provided for transitional period (for a more detailed discussion of the coverage of waste sector emissions and legacy emissions see Chapter 6).

As most waste landfills will give rise to both legacy and non-legacy emissions, in order to provide for transitional arrangements, emissions estimation methodologies used to report emissions from waste landfills must have the capacity to distinguish between both types emissions. Under the NGERS framework, only indirect emissions estimation methodologies (Methods 1-3 under the NGER Measurement Determination 2008) have capacity to differentiate legacy and non-legacy emissions from waste landfills. Therefore, NGERS Methods 1-3 will be the only methods available for estimating the proportion of legacy

emissions arising from existing landfill sites. While the NGER Measurement Determination does not currently include a direct measurement methodology (Method 4) for the estimation of landfill emissions, the Government is working with the industry to explore the development of a direct measurement method. If developed, this methodology would be available for use by landfill sites in estimating total emissions arising from a site. If a direct measurement approach were adopted by a landfill site to calculate its total emissions, that site's legacy emissions would be calculated by applying the proportion determined as legacy emissions, developed using Method 1-3, to the total level of emissions determined using Method 4.

#### Policy position 7.14

Solid waste landfill sites will be required to use National Greenhouse and Energy Reporting System Methods 1–3 to estimate the proportion of legacy emissions arising from landfill sites.

# 7.3.2 Improving accuracy over time

In the Green Paper, the Government noted the importance of improving, over time, the facility-level accuracy of emissions reporting. Greater accuracy would make the Scheme fairer by ensuring that each facility faces carbon costs that most accurately reflect its specific emissions profile. More accurate facility-level information will also increase Scheme efficiency by revealing a more detailed profile of a facility's emissions and abatement opportunities.

The Government also noted the need to balance the benefits of greater accuracy in facility-level reporting with the potential higher measurement costs of more accurate methodologies. Weighing these issues, the Government expressed the following preferred position in the Green Paper.

#### **Green Paper position**

Staged increases in the accuracy of emissions estimates over time would be pursued by imposing increasing minimum standards for estimation methodologies, where this is cost effective for the scheme overall.

Additional sources would be investigated for the possible imposition of minimum standards for emissions estimation methodologies soon after the commencement of the scheme, but not in the first two years of the scheme. Sources that may warrant investigation include:

- fugitive emissions from open-cut coal mines
- emissions from coal use (non-electricity, such as steel production)
- waste sector emissions
- natural gas combustion emissions (non-electricity).

Stakeholders generally recognised the benefits to the Scheme of pursuing staged increases in the facility-level accuracy of emissions reports. ExxonMobil, for example, stated:

ExxonMobil is also broadly supportive of the use of emissions estimating methodologies available under NGER and acknowledges the need for staged increases in accuracy and minimum standards for specific emissions sources. (Submission 254, p. 8)

In its submission, ESAA also stated that the energy industry considers that emission estimation methodologies should reflect the principle of continuous improvement (Submission 715, p. 14).

Industry stakeholders commented broadly on the preference for higher order methods to be developed for a range of sources after the Scheme begins to facilitate more accurate reporting of emissions at the facility level. Stakeholders also welcomed the Government's commitment to consult affected industries before implementing new minimum methodological standards to be used for reporting emissions under the Scheme.

For example, in its submission to the Green Paper, the Australian Institute of Petroleum noted the necessity for a clear statement regarding advance consultation on methodology changes (Submission 673, p. 30).

The Government will consider staged increases in the required accuracy of emissions estimates after the Scheme has begun, where the benefits to the efficiency of the Scheme outweigh the compliance costs of implementing more accurate monitoring methods. The Government will engage with affected industries in determining minimum methodologies to be used for estimating certain emission sources.

## Policy position 7.15

Staged increases in the accuracy of emissions estimates over time will be pursued by imposing increasing minimum methodologies for certain sources, where the benefits to the efficiency of the Scheme outweigh the compliance costs of implementing more accurate monitoring methods.

The responsible Minister will use existing powers under the *National Greenhouse and Energy Reporting Act 2007* to set minimum estimation methodologies. The Minister will consult with affected parties on the implementation costs and on the adequacy of notice before imposing new minimum standards for emissions estimation methodologies for a source or activity.

#### **Open-cut coal mines**

While technologies exist to accurately measure fugitive emissions from underground coal mines, measurement methodologies for estimating emissions from open-cut coal mines are comparatively less developed.

In submissions to the Green Paper, the coal mining industry expressed concern that the default methods currently available for measuring fugitive emissions from open-cut coal mines would disadvantage some mines. In particular, the Australian Coal Association submitted:

It is recognised both here and overseas that the reliability of existing open-cut greenhouse gas emissions estimation is very low. (Submission 530, p. 7)

In submissions to the Green Paper, both Xstrata and the Australian Coal Association argued that to address potential competitive and economic neutrality issues, coverage of fugitive emissions from underground and open-cut coal mines should be delayed until after technical methodological issues relating to open-cut coal mines have been resolved (Australian Coal Association, Submission 530, p. 13; Xstrata, Submission 593, p. 15). As discussed in Chapter 6 the Government does not support the exclusion of fugitive emissions from coal mines, because delaying their coverage would impose a greater share of the costs of reducing Australia's emissions on other covered sectors. Moreover, there does not appear to be a strong case for delaying coverage of fugitive emissions from coal mines on the basis of measurement issues, since open-cut mines will have the option of using a number of methods to estimate emissions, either an internationally approved default emissions factor approach, or the site specific-methodologies in the NGER Measurement Determination (see Chapter 6).

A number of submissions also noted the significant progress that the industry is making towards the refinement of higher order methodologies for the measurement of fugitive emissions from open-cut coal mines. Xstrata noted:

Industry has been proactively addressing this knowledge gap by working with the research community to develop an alternative estimation methodology for open cut mines. The coal industry through the Australian Coal Association has also sought to develop an ongoing dialogue with government to address the practicality of covering fugitive emissions from coal mining under the ETS. The "higher" order methodology to estimate fugitive emissions being developed by industry is not yet available for implementation and will need to be peer reviewed and accredited by government before it can be implemented or audited under the NGERs. (Submission 593, p. 15)

The Australian Government supports giving priority to refining higher order methods before the Scheme begins.

The NGER Measurement Determination currently provides for the use of site specific emission estimation methodologies via the sampling of fugitive gases arising from specific mines sites based on NGERS Methods 2 and 3. These methods currently provide alternative methods for estimation of emissions from open-cut coal mines where default estimation methods do not accurately reflect the specific characteristics of a given mine site.

While the NGER Measurement Determination currently provides for these site-specific methods, further work is continuing under the Australian Coal Association Research Program to provide input to the Government for the development of guidance on the application of the methods to open-cut mines sites, to be consistent with the requirements of the determination. The Government welcomes this work and to this end has developed a working group to work in conjunction with the industry to further refine these methods before the Scheme begins.

Following the completion of this work and the commencement of the Scheme, the Government will work with the industry to determine whether a minimum methodology standard should be imposed on all entities reporting fugitive emissions from open-cut coal mines.

#### Other sectors

In the Green Paper, the Government also sought comments on its preference to undertake investigations into the scope for setting minimum methodologies for estimating emissions from a number of other emissions sources, including:

- the combustion of coal in circumstances other than electricity generation
- the combustion of natural gas in circumstances other than electricity generation
- the disposal of solid waste at landfill sites.

In addition to being used in electricity generation, coal is consumed directly by a number of large industrial emitters, such as the iron and steel, non-ferrous metal and cement industries. Given the size of these industrial operations and the variation in the carbon content of coal from different sources, the Government indicated in the Green Paper that the benefits to the Scheme of increased accuracy of reporting by those sources may outweigh the additional costs of using more accurate estimation methods.

Natural gas is also consumed in large volumes by industries other than those involved in electricity generation. In the Green Paper, the Government sought comments on the possible alignment of methodologies for the reporting of natural gas consumption across electricity generation and non-generation uses. However, the Government noted a number of issues to be resolved in relation to the availability of data including the composition of gas within specific transmission and distribution pipelines, the extent and reliability of gas composition analyses across Australia, possible problems associated with disclosing commercial information, an appropriate threshold, and the implementation costs of such an approach.

Relatively few submissions commented directly on proposals to investigate mandated higher order methods for the estimation of emissions from the combustion of coal and natural gas in circumstances other than electricity generation. Once the Scheme begins, the Government will engage with major consumers of coal and natural gas to investigate the scope for setting minimum measurement standards to bring emissions measurement into line with that required in the electricity generation.

Submissions on the future development of emissions estimation methodologies were received from the waste sector. These submissions and the Government's approach to estimating emissions from this sector is discussed above in section 7.3.1.

In accordance with the Government's preference in the Green Paper, the Government will engage with entities reporting emissions from all of the above sources to investigate setting minimum methodologies for their estimation, following the commencement of the Scheme.

Additional sources will be investigated for the possible imposition of minimum standards for emissions estimation methodologies soon after the Scheme begins, but not in the first two years of the Scheme. The Government will give priority to considering the following sectors for possible inclusion following the commencement of the Scheme:

- emissions from coal use (non-electricity, such as steel production)
- emissions from solid waste deposited at landfills
- natural gas combustion emissions (non-electricity)
- fugitive emissions from open-cut coal mines.

## 7.3.3 Methodologies for upstream fuel liabilities

As proposed in Chapter 6, maximal Scheme coverage is a key element in lowering the overall cost to the Australian economy of achieving emissions reductions. Broad coverage can be achieved by covering not only as many sources of emissions as practicable but also as many of the emissions from each source as is feasible. For some emissions sources, close to complete coverage can be achieved by applying Scheme obligations both to large direct emitters and to upstream fuel suppliers for emissions from small emitters. For example, Scheme obligations for emissions from coal combustion could be applied to both large coal users and coal mines for emissions from small coal users, such as household barbecues.

#### Liquids, solids and gaseous fuels

As described in Chapter 6, certain fuel suppliers will be obliged to surrender permits for emissions to be released from fuels they supply to entities who do not hold an Obligation Transfer Number (OTN) under the Scheme. Under these arrangements, in addition to being liable for the direct emissions they produce as a result of their own operations, upstream entities who supply fuels to entities without an OTN will also be liable for the emissions to be released from those fuels when they are combusted by downstream users in those fuels. Information regarding the operation of OTNs under the Scheme, and entities who will be required and entitled to obtain an OTN is set in Chapter 6.

Noting the special nature of upstream arrangements and the need to align the reporting of fuel quantities supplied to end users with fuel excise and customs duty, the Government expressed the following preferred position in the Green Paper.

#### **Green Paper position**

Further consultation and analysis would be undertaken to establish appropriate reporting requirements and emissions estimation methodologies relating to the obligations of upstream fuel suppliers under the scheme.

Noting the importance of other existing reporting regimes, the Green Paper also expressed the Government's preference that the Scheme utilise related provisions in other Australian Government schemes, such as the fuel excise and customs duty arrangements for liquid fuels, to minimise compliance burdens.

To give effect to this approach, upstream suppliers of coal, gas and liquid fuels will be required to measure and report the quantity of, and in some cases the emissions to arise from the combustion of, fuels they sell to downstream entities. Chapter 6 discusses situations where downstream users of fuels can take on direct liability for emissions arising from the combustion of certain fuels through the operation of an OTN granted by the Scheme regulator. Given these arrangements, in addition to obligations to report on their direct emissions, fuel suppliers will be required to report at least two additional sets of information to the Scheme regulator:

- quantities of fuels (such as coal, natural gas, liquid fuels) supplied to, or purchased from, entities holding an OTN
- quantities of fuels and emissions associated with quantities of fuels supplied to entities not holding an OTN.

Fuel suppliers will be required to apply national average emission factors to fuel quantities supplied to entities that do not have an OTN to reach an estimation of their obligations under the Scheme.

Submissions from upstream fuel suppliers generally supported the alignment of reporting methodologies for measuring fuel quantities with methodologies and guidances issued by the Australian Taxation Office and the Australian Customs Service relating to the measurement of quantities of liquid fuels subject to excise and customs duties. The Australian Institute of Petroleum, for example, stated:

AIP strongly supports the need for the CPRS reporting rules to incorporate the relevant parts of the fuel excise legislation and Regulations etc., as well as the equivalent parts of the Customs legislation and Regulations. (Submission 673, p. 29)

To streamline reporting for liable entities, legislation introducing the Scheme will amend the NGER legislation to best use Australian Taxation Office methodologies and guidances relating to measuring quantities of liquid fuels subject to excise and customs duties. Entities that currently measure and report information to the Government under the above provisions will be able to use the same methods and practices to report emissions information to the Scheme regulator.

In relation to the upstream supply of natural gas and coal, the NGER Measurement Determination currently provides detailed standards around the measurement of quantities of gaseous and solid fuels (divisions 2.2.5 and 2.3.6). These provisions will be used to expand the determination to provide for the reporting of quantities of solid and gaseous fuels supplied for the purposes of the Scheme.

While utilising these provisions for the estimation of fuel supplied will streamline reporting between the two regimes, upstream liable entities will need to apply national average emission factors set out under the NGER Measurement Determination to supplied volumes to report their obligations under the Scheme. These emissions will then be reported to the Scheme regulator through the Government's Online System for Comprehensive Activity Reporting (OSCAR).

Because the end use that fuels are put to affects the combustion process, the NGER Measurement Determination provides detailed emission factors for each end use. An example of this is outlined in the table below.

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End use	kg CO <sub>2</sub> -e/GJ for CO <sub>2</sub> carbon dioxide	kg CO2-e/GJ for CH₄ methane	kg CO2-e/GJ for N₂O nitrous oxide	Total kg CO2-e/GJ carbon dioxide			
Natural gas used in heavy duty vehicles	51.2	2.1	0.3	53.6			
Natural gas used in light duty vehicles	51.2	5.5	0.3	57.0			

#### Table 7.1: Differences in emissions factors by end use

In most cases, upstream suppliers will not be able to definitively determine the end use that a fuel will be put to. Therefore, national average emission factors will be used to determine emissions to be released from the combustion of the supplied fuels. Upstream fuel suppliers generally supported the application of average emission factors across uses, because it would provide certainty, a level playing field, and simplify their reporting (Australian Institute of Petroleum, Submission 673).

A small number of stakeholders argued that different emission factors could be applied to quantities of fuel supplied, depending on the end use that the fuel was likely to be put to. While in theory such an approach may lead to more accurate reporting, it would also require detailed tracing of the final uses of quantities supplied by upstream entities, significantly increasing the complexity of the Scheme and imposing more onerous reporting obligations on upstream liable entities.

Given that upstream suppliers will not be able to definitively determine the end use that a fuel will be put to, an average factor, that reflects the weighted average of overall national uses, is most appropriate to provide certainty and a level playing field for upstream entities. Accordingly, the NGER Measurement Determination will be amended to include a national average factor across all uses of a particular fuel to be used in converting fuel quantities into emissions estimates that will give rise to obligations under the Scheme.

By contrast, where an entity opts to take on liability for emissions arising from fuels supplied by an upstream fuel supplier under an OTN (see Chapter 6), the entity will know the exact use that the fuel will be put to. In such cases, it is sensible for entities receiving fuel under an OTN and combusting that fuel to use point source emissions factors to estimate emissions as this will most accurately reflect emissions arising from an activity.

#### Importers of synthetic greenhouse gases

To streamline reporting for liable entities, legislation implementing the Scheme will amend the NGER legislation to use the monitoring and measurement methodologies currently used by importers of synthetic greenhouse gases into Australia set out in section 46 of the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989* and regulation 900 of the Regulations made pursuant to that Act.

For the purposes of the Scheme, imported synthetic greenhouse gases will be considered to be emitted at the point of import or manufacture (see Chapter 6). To meet their reporting obligations under the Scheme, importers and manufacturers, like other upstream liable entities, will be required to apply emissions factors set out in the NGER Measurement Determination to the quantities of synthetic greenhouse gases imported into, or manufactured in, Australia, and to report this emissions number.

#### Policy position 7.17

The NGER legislation will be amended to implement reporting obligations and methodologies for upstream entities that will have obligations under the Scheme.

Legislation implementing the Scheme will amend the NGER legislation to best utilise:

- methodologies and guidance issued by the Australian Tax Office and the Australian Customs Service relating to the measurement of quantities of liquid fuels subject to excise and customs duty;
- section 46 of the *Ozone Protection and Synthetic Greenhouse Gas Management Act* 1989 and regulation 900 of the Regulations dealing with quantities of synthetic greenhouse gases imported into, and manufactured in, Australia.

The NGER Measurement Determination will be amended to provide national average emission factors to be applied to measured quantities of fuels to be reported under the Scheme, to help determine the obligations of upstream liable entities.

# 7.3.4 Notification of changes to methodologies

As the emission estimation methodologies underpinning NGERS and the operation of the Scheme are based on international standards, it is likely that the Government will need to periodically amend these methodologies in accordance with changes occurring at the international level. Noting this likelihood, the Government's preferred position in the Green Paper was to provide five years notice before making significant changes to methodologies available for reporting under the Scheme.

#### **Green Paper position**

Consistent with adjustments to the scheme trajectory, five years notice would be given before major revisions of emissions estimation methodologies that affect the majority of stakeholders. Submissions to the Green Paper welcomed the Government's commitment to provide notice to reporting entities of changes in reporting methodologies under the Scheme. Changes made at the international level, such as those to global warming potentials of greenhouse gases, are intimately bound up with other key decisions in relation to the Scheme caps and trajectory. Consequently, these changes will be implemented into the Scheme methodologies following five years notice.

The first of these changes is most likely to occur in 2012–13 at the end of the current Kyoto commitment period and the beginning of the next phase of international commitments. At this juncture it is very likely that a new international agreement on targets for the next phase of emissions reductions will update the global warming potentials of the gases covered by those targets to take account of updated science. It will be important to use any updated warming potentials to estimate the emissions covered under the Scheme to ensure that the Scheme achieves one of its goals, that of reducing Australia's emissions in line with its international commitments. If these changes were not made, the Government would bear the cost of changes to the international accounting rules that tightened Australia's emissions constraint. Conversely, if changes to the international accounting rules that relaxed Australia's emissions constraint were not adopted under the Scheme, the economic cost of the Scheme would be higher than necessary.

#### Policy position 7.18

Significant revisions to emissions estimation methodologies that affect the majority of stakeholders, such as amendments to global warming potentials of certain gases, or the inclusion of new gases, will be implemented after five years notice.

The Government is providing notice now that, if necessary, global warming potentials for gases covered under the Scheme will be revised at the beginning of the next commitment period (2013) to align with those agreed at the international level for the purposes of determining Australia's national emissions obligations.

# 7.3.5 Consistency of data over time

As outlined in section 7.3.1, some sectors will be required to adopt particular methodologies as a minimum standard for reporting emissions from certain sources under the Scheme. For all other sources, the Government expressed the preference in the Green Paper that entities be free to make their own judgments in balancing the costs of using the higher methods against the benefits of potentially improved emission estimates.

Notwithstanding this overarching principle, the Government also expressed the preference that where an entity has elected to use a higher method for a particular emissions source than required under the Scheme, that methodology would be the minimum standard to apply to that source for that entity for a period of four years. The Government set out its preferred position in the Green Paper as follows.

#### **Green Paper position**

Noting the four classes of methodologies available for the National Greenhouse and Energy Reporting System, 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.

The Government took this position for a number of reasons. First, there is a need to limit the extent to which a liable entity under the Scheme can shift between methodologies on a regular basis, giving rise to different emissions obligations under the Scheme without any change in emissions or activity.

Second, frequent methodological changes could cause monitoring and assurance challenges for the Scheme, instability in total measured emissions, and unforeseen financial implications for third-party investors who rely on the stability of estimation methodologies. Without regulation, such effects could challenge the transparency and fairness of the Scheme.

Submissions did not oppose the need to have consistent and stable emissions reporting methodologies over a number of years. Therefore this position is confirmed under the Scheme.

#### Policy position 7.19

Where an entity has elected to use Method 2 or above for a particular emission source, that methodology will be the minimum standard for that source, for that entity, for a period of four years.

## 7.3.6 Documentation and records

Entities will be required to keep records of activities to show that emissions reports have been compiled accurately and to enable auditing of those reports. Section 22 of the NGER Act sets out the current requirements for entities and individuals in relation to record keeping. The NGER Technical Guidelines provide some further guidance. In the Green Paper, the Government expressed its preference for record-keeping and documentation requirements under the Scheme to be those set out in the NGER Act to streamline compliance under the Scheme.

#### **Green Paper position**

Provisions relating to documentation and record keeping under the scheme would be based on those set out for the National Greenhouse and Energy Reporting System.

Relatively few submissions commented on the record-keeping requirements under NGERS or the Scheme, implying a preference for the alignment of record-keeping obligations. Although the information to be kept in records is a matter for individual corporations, details of the calculation and data analysis methods used for the estimation of greenhouse gas emissions and energy production and consumption should be recorded. To help entities identify the types of information that would substantiate their emissions statements to the Scheme regulator, the NGER Reporting Guidelines provides the following guidance on information that should be recorded:

- a list of all sources monitored
- the activity data used for calculating greenhouse gas emissions for each source, categorised by process and fuel or material type
- documentary evidence relating to calculations—for example, receipts, invoices and details of payment methods
- documentation of the methods used for greenhouse gas emissions and energy estimations
- documents justifying selection of the monitoring methods chosen
- documentation of the collection process for activity data for a facility and its sources
- records supporting business decisions, especially for high-risk areas relating to reporting coverage and accuracy.

The NGER Reporting Guidelines also reference AS ISO 15489 (the Australian and international standard for record management) for guidance on record-keeping processes.

The NGER Act currently requires records to be kept for seven years from the end of the reporting year in which the activities took place. In line with obligations under the taxation system, legislation implementing the Scheme would amend the NGER Act to require records to be kept for five years from the end of the reporting year in which the activities took place.

#### Policy position 7.20

Provisions relating to documentation and record keeping under the Scheme would be those set out under the NGER Act.

Entities with reporting obligations under the Scheme will be required to keep records for five years to substantiate emissions reports submitted to the Scheme regulator.

# 7.4 Reporting

Reporting of emissions information to the Scheme regulator will be a key underpinning element of the Scheme. To minimise compliance burdens for entities with obligations under the Scheme, in the Green Paper the Government committed to aligning reporting requirements with existing frameworks wherever possible.

NGERS requires the annual submission of emissions reports by 31 October each year following the completion of the compliance period on 30 June. In the Green Paper, the Government proposed that reporting under NGERS and the Scheme be aligned to minimise compliance costs for entities with obligations under the Scheme. The Government also

expressed a preference for OSCAR, currently in place for reporting under NGERS, to be the repository for reported emissions under the Scheme.

#### **Green Paper position**

A single report would be sufficient to satisfy an entity's obligations under both the National Greenhouse and Energy Reporting System and the Carbon Pollution Reduction Scheme, with reports to be submitted by 31 October each year.

Stakeholders strongly supported the Government's preferred position for a single report to meet obligations under both the Scheme and NGERS (Origin Energy, Submission 815, p. 49). As obligations under the Scheme will generally be a subset of NGER's reporting requirements, Scheme liabilities will generally be able to be determined via the submission of a consolidated set of emissions data to the Government.

# 7.4.1 Frequency of reporting

A number of submissions to the Green Paper argued that under the Scheme emissions should be reported quarterly or half-yearly to ensure that the permit market receives a steady stream of price-sensitive information throughout the year. For example, ESAA, Westpac, the Australian Banker's Association and the wider financial sector argued that reporting more often than once a year would increase the stability of the permit market and avoid the price volatility that was observed in the early years of the European Union Emissions Trading Scheme. However, these stakeholders also generally acknowledged that more frequent reporting would impose an additional compliance burden on liable entities.

Recognising this, a number of other submissions suggested that the quarterly reporting of un-audited data by liable entities would strike an acceptable balance between the timeliness of information and compliance costs (Australian Stock Exchange, Submission 811, p. 13).

In contrast, a number of submissions from reporting entities strongly opposed more frequent reporting under the Scheme on the basis that it would add significantly to the administration costs of the Scheme (APPEA, Submission 834, p. 29).

The Government recognises that more frequent reporting of emissions data will result in greater stability and efficiency in the permit market and that compliance costs need to be kept as low as possible for entities with obligations under the Scheme. In considering price volatility and parallels with the European Union Emissions Trading Scheme, the Government also notes that other elements of the Carbon Pollution Reduction Scheme, such as the ability for participants to bank permits between compliance periods, will reduce the risk of significant price shocks. The Government has also considered the number of existing sources of information that will be available to inform the market without imposing compliance costs on reporting entities to undertake reporting more frequently than once a year.

To ensure that the market has a steady flow of information, the Department of Climate Change will make publicly available quarterly updates of emissions from each sector through the National Greenhouse Accounts. This will provide the market with frequent aggregate emissions information and help participants to make judgments about the size of permit demand, without increasing reporting and compliance burdens on industry. These updates will provide emissions information derived using proxy information available throughout the year.

A number of other proxy information sources will also be available to the market throughout the year. Some of these sources are shown in the table below.

Source	Information	Timing
ASX: Periodic reporting of financial information	Financial liabilities accruing under the Scheme	Six-monthly
National Electricity Market Management Company (NEMMCO)	Electricity generation data (by generator)	Half-hourly
Australian Petroleum Statistics (by subscription)	Sales, production, imports, exports of petroleum products	Monthly

Table 7.2	: Market	information	sources

Subject to the clarification of international accounting rules by the International Accounting Standards Board, under the ASX Listing Rules many of Australia's largest emitters will be required to report their accrued financial obligations under the Scheme as part of their half-yearly reporting obligations.<sup>2</sup> The exact nature of the accounting treatment for accrued Scheme obligations is yet to be determined by the International Accounting Standards Board (see Chapter 14). This information will provide the market with information on the expected Scheme obligations for some of Australia's largest emitters at six-monthly intervals throughout the year.

The ASX Listing Rules also provide for continuous disclosure of a listed entity's material business risks. Under these rules, listed entities would also be obliged to communicate to the market any material events or risks arising from their Scheme liabilities.

Another proxy information source is half-hourly data published by the National Electricity Market Management Company (NEMMCO) on the amount of electricity generated by participants in the National Electricity Market. NEMMCO publishes electricity generation (in megawatt-hours) on a generator-by-generator basis. Combined with assumptions about emissions intensity of different types of generators, this information will provide a strong indication of emissions arising from the electricity generation sector throughout the year.

Throughout the year, the market will also have access to information in relation to the consumption of petroleum products in the economy through monthly issues of *Australian Petroleum Statistics*, available on subscription from the Australian Government Department of Resources, Energy and Tourism. The data will enable users to track the consumption and emissions (when combined with proxy emission factors) associated with transport fuels throughout the year.

Mindful of the need to lower compliance costs for liable entities and the availability of other information sources to the market throughout the year, in the initial years of the Scheme the Government will not impose a requirement for reporting more frequently than once a year. However, the Government will consider moving to more frequent reporting following initial experience with the Scheme.

A single emissions report will satisfy an entity's obligations under both the National Greenhouse and Energy Reporting System and the Carbon Pollution Reduction Scheme. Reports for each reporting period will be required to be submitted by 31 October following each financial year.

The Government will consider the need to require entities to report emissions more frequently than annually following initial experience with the Scheme.

# 7.4.2 Publication of data

The Green Paper also discussed the level of emissions information to be made publicly available following the reporting of this information to the Government. Noting the need to provide detailed information to inform the market while limiting public disclosure of commercially sensitive data, the Government sought comments from stakeholders on whether the Scheme regulator should publish emissions information at the facility level.

#### **Green Paper position**

As soon as feasible after reports are submitted, the Government would publish on the internet emissions obligations under the scheme, the types of assessment methodologies used and any uncertainty estimates reported by liable entities.

Some stakeholders supported the publication of detailed emissions information at the facility level to ensure that the market had a consistent set of detailed information about the liabilities of each entity under the Scheme (Investor Group on Climate Change, Submission 697, p. 4; Australian Conservation Foundation, Submission 809, p. 40). Noting that information regarding the emissions of electricity generators could be determined from electricity generation data published by NEMMCO, ESAA argued that to improve market transparency and forecasting of supply and demand for permits, emissions data should be published at the facility level for all liable entities.

Against this, a number of submissions strongly opposed disclosing commercially sensitive information, noting that this might be a consequence of publishing emissions information at the facility level (APPEA, Submission 834, p. 29).

Some in the financial sector supported the view that emissions data need not be disaggregated to lower levels, as supply and demand information at the sectoral level will provide sufficient detail for ongoing market analysis and price forecasting (Westpac Banking Corporation, Submission 695, p. 7).

As noted in the Green Paper, the Government believes publication of facility-level data would deliver efficiency dividends by providing the market with more detailed information about the structure and nature of an entity's obligations under the Scheme. That said, the Government also recognises that public disclosure of some commercially sensitive data may cause concerns for some entities.

Therefore, the Scheme regulator will not publish emissions information at the facility level but will publish emissions information consistent with the level of disclosure set out under the NGER Act, as soon as practicable after submission to the Scheme regulator, including:

- total emissions reported by all liable entities
- annual emissions reported by each liable entity
- the types of estimation methodologies used, and uncertainty estimates reported by liable entities.

The Government may review this level of publication based on the initial experience of the Scheme. A comprehensive listing of the information to be published by the Scheme regulator is set out in Chapter 8.

#### Policy position 7.22

The Scheme regulator will publish emissions obligations under the Scheme, the types of estimation methodologies used and any uncertainty estimates reported by liable entities on the internet as soon as is feasible after reports are submitted.

The Government will publish this information for liable entities, consistent with the level of disclosure set out under the NGER Act, rather than at the facility level.

The Government may review this level of publication based on the initial experience of the Scheme.

# 7.4.3 Aligning financial and emissions reporting

In the Green Paper, the Government expressed a preference to further investigate the alignment of financial and emissions reporting over time to streamline reporting for entities that have obligations in both areas.

#### **Green Paper position**

The Government would investigate further the scope to align financial and emissions reporting and audit systems.

The Government proposed a reporting regime under the Scheme that would align the timing of financial and emissions reporting for entities that have obligations in both areas. For example, under section 319 of the *Corporations Act 2001*, certain entities must lodge financial statements with the Australian Securities and Investments Commission (ASIC) within three or four months after their balance date, depending on how they are classified. For most entities reporting on a 30 June financial year basis, this will significantly align with the final date for emissions reporting under the Scheme of 31 October, following each financial year. These common timelines will mean that most liable entities will be able to prepare both statements at the same time with respect to the same periods, and for this information to be communicated to the market in a consolidated fashion.

The Government is also seeking to align auditing and assurance of emissions data for reporting entities. For example, where an audit of an entity's emissions data is completed for the purposes of the Scheme and is in compliance with Australian Auditing Standards, this may also be used to inform the audit of an entity's financial statements.

In relation to disclosure, Australia's corporate disclosure framework currently consists of requirements for entities to report both financial and non-financial information. Under the Corporations Act, approximately 30,000 of the 1.6 million companies in Australia are required to prepare financial statements in accordance with accounting standards and a directors' report containing a range of non-financial information.

Australia's approach to the preparation of non-financial information in the directors' report is to establish general reporting principles rather than to mandate reporting on specific subjects. Such an approach helps to minimise the reporting burden on business and encourages entities to report on relevant issues.

This principles-based approach is reflected in the disclosure requirements for the contents of a directors' report. These qualitative disclosures are designed to capture the key issues for an entity's business. This may include reporting on particular environmental issues, for example emissions trading, but only where they are of material importance to the entity and its business.

Earlier this year, the Government announced a review of non-financial disclosures as part of a broader review of the Australian financial reporting framework. Australia's principles-based approach to non-financial reporting is already consistent with the inclusion of information on emissions in the directors' report. Strategies to clarify and further emphasise non-financial disclosures are being considered by the Australian Government Treasury as part of its review of non-financial disclosures.

#### Policy position 7.23

A common reporting timeline between financial and Scheme reporting will mean that most liable entities will be able to prepare financial and emissions reports at the same time with respect to the same periods, and for this information to be communicated to the market in a consolidated fashion.

In relation to disclosure, Australia's principles-based approach to non-financial reporting currently allows for the disclosure of information on emissions in directors' reports. Strategies to clarify and further emphasise non-financial disclosures are currently being considered by the Australian Government Treasury.

# 7.5 Audit

A credible Scheme will help drive efficient investment decisions and emissions reductions throughout the economy. The audit regime supporting the Scheme will be important in achieving market confidence in reported emissions data and in ensuring the credibility of the Scheme.

In the Green Paper, the Government discussed various options for audit and assurance of emissions information reported under the Scheme, including:

- assurance provided by independent third-party practitioners on a mandatory basis before the submission of an entity's emissions report
- self-assurance by entities, supported by a retrospective audit regime managed by the Government.

Recognising a tension between the benefits of highly assured emissions data and compliance costs for reporting entities, the Green Paper proposed that at the commencement of the Scheme only the largest emitters (those with obligations under the Scheme of 125,000 tonnes of  $CO_2$ -e or more) would be required to have their emissions reports audited before submitting them to the Scheme regulator.

#### **Green Paper position**

Large emitters (those with obligations under the scheme of 125 000 tonnes of carbon dioxide equivalent or more) would be required to have their annual emissions reports assured by an independent accredited third party prior to their submission. The Government would consider the need to extend this requirement on the basis of initial experience, developments relating to international linking and the compliance burdens likely to be placed on small entities.

The scheme regulator would have powers to conduct assurance audits using a risk-based approach for all emissions reports submitted under the scheme, as is the current approach under the National Greenhouse and Energy Reporting System. The scheme regulator would also have the power to review an annual emissions report for up to four years after its submission, except in the case of fraud, in which case the period would be unlimited.

Submissions generally supported the need for a strong audit framework to assure the quality of emission reports submitted under the Scheme. Chevron Australia stated:

Chevron supports the Government's proposal that annual emissions reports be assured by an independent accredited third party prior to submitting the reports to government. Our experience in other environmental markets has shown that independent assurance contributes credibility of the market. (Submission 716, p. 27)

BP Australia stated:

BP supports initial mandatory third party assurance for large users. (Submission 355, p. 9)

Some stakeholders did not agree that audit of emissions reports should be conducted by independent third parties before their submission to the Government under the Scheme. For example, both ESAA and APPEA argued that a self-assurance model would minimise compliance costs for liable entities. ESAA stated:

To ensure accurate reporting, emissions should be subject to periodic audits and third party assurance should only be required on an exception basis, where the scheme

regulator has reason to suspect the self assurance approach has failed for an entity. (Submission 715, p. 16)

The Government is conscious of the need to reduce compliance costs for liable entities wherever possible under the Scheme. However, as discussed in the Green Paper, the Government considers that the integrity of emissions data is critical to the credibility of the Scheme, especially in the early years of the Scheme when the credibility of the Scheme is being established and the capacity of industries to report emissions is less mature. The European Union Emissions Trading Scheme requires all entities to have their emissions reports verified prior to acceptance by the Scheme regulator.

The Government's position is that the audit of emissions reports from large emitters by an independent third party before their submission to the Scheme regulator will provide a high level of market confidence that reported data is complete and accurate, increasing the integrity and efficiency of the Scheme. Such an approach would also establish the integrity of emissions estimates internationally and increase the Scheme's ability to link with other Schemes in the future. Alternatively, while a self-assurance model would reduce compliance costs for liable entities, it could risk the credibility of the Scheme through reduced market confidence in data underpinning the demand for permits.

A number of stakeholders (KPMG, Submission 545; Group of 100, Submission 797) also noted that many entities are likely to have their underlying emissions data audited independently of the Scheme as a result of including the financial implications of Scheme liabilities in their financial statements. In these cases, any additional costs for complying with the audit requirements of the Scheme will be low.

For these reasons, the Government confirms that those entities with obligations under the Scheme for greenhouse gas emissions of 125,000 tonnes of carbon dioxide equivalent or more will be required to have their annual emissions reports audited by an independent third party prior to their submission to the Scheme regulator. These audits would be required to encompass emissions information relating to the calculation of an entity's liability under the Scheme, but not be required to extend to information reported to the regulator under NGERS, which does not relate to the entity's obligation under the Scheme. As discussed in the Green Paper, the Government will consider the need to extend this requirement on the basis of initial experience, developments relating to international linking and the compliance burdens likely to be placed on liable parties, particularly smaller emitters.

As discussed in the Green Paper, the Scheme regulator would also have powers to review annual emissions reports and amend entities' obligations under the Scheme for up to four years after the reporting date for the relevant compliance year. However, in cases of suspected fraud this period would be unlimited. The Scheme regulator would conduct, or require these audits to be conducted, using either a risk management approach or on suspicion of non-compliance as envisaged under sections 73 and 74 of the NGER Act.

These periods of review are broadly consistent with amendment periods under current business tax provisions for entities with complex affairs. Generic enforcement provisions that would apply under the Scheme are discussed in Section 7.6.

Large emitters (those with obligations under the Scheme for greenhouse gas emissions of 125,000 tonnes of carbon dioxide equivalent or more) will be required to have their annual emissions reports audited by an independent third party before submitting them to the Scheme regulator. The Government will consider the need to extend this requirement on the basis of initial experience, developments relating to international linking and the compliance burdens on small entities.

The Scheme regulator will conduct, or require the appointment of external auditors to conduct, external audits using either a risk management approach or on suspicion of non-compliance.

# 7.5.1 Audit standards and guidelines

A strong reporting and audit regime needs to be underpinned by clear audit standards and guidelines.

Consistent with the Government's general approach that NGERS provide the basis for monitoring, reporting and auditing under the Scheme, in the Green Paper the Government expressed a preference for audit of emissions information under the Scheme to be conducted in accordance with guidelines to be made under the NGER Act. This position would ensure a single audit regime for emissions reports under NGERS and the Scheme.

#### **Green Paper position**

Assurance under the Carbon Pollution Reduction Scheme would be carried out in accordance with guidelines made under the *National Greenhouse and Energy Reporting Act 2007* using standards produced by the Australian Government's Auditing and Assurance Standards Board.

The Auditing and Assurance Standards Board (AUASB) already has in place a standard that can be applied to non-financial reporting, which is based on international standards. This standard is ASAE 3000 Assurance engagements other than audits or reviews of historical financial information. The ASAE 3000 addresses matters such as ethics, quality control, planning requirements, using the work of an expert, obtaining evidence, documentation, and preparation of assurance reports.

The AUASB has also recently issued 'Standard on Assurance Engagements ASAE 3100 *Compliance engagements*'. This standard references ASAE 3000 both in its mandatory provisions and explanatory guidance notes.

In addition to the above, other standards that could be referenced in the NGERS guidelines include:

• ISO 14064–3:2006 Greenhouse gases—Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions

- ISO 19011:2002(E) *Guidelines for quality and/or environmental management systems auditing*
- The International Standard on Related Services (ISRS) 4400 Engagements to perform agreed-upon procedures regarding financial information
- The former AUASB standard AUS 904 Engagements to perform agreed-upon procedures.

A number of stakeholders from the accounting and audit sector supported the Government's preferred position that audits under the Scheme be conducted accordance with guidelines made under the *National Greenhouse and Energy Reporting Act 2007* and using standards produced by the AUASB. These stakeholders supported the use of standards developed by the AUASB as it would assist in aligning reporting under the Scheme with reporting under the established financial framework (KPMG, Submission 545, p. 28; Ernst & Young, Submission 879, p. 5).

Some stakeholders (for example, Protiviti, Submission 649; Origin Energy, Submission 815) suggested that standards to be used for assurance of emissions under NGERS and the Scheme should not be limited to those developed by the AUASB, and should recognise acceptable standards developed by other bodies such as the International Organization for Standardization.

The Government is currently considering submissions provided in response to a detailed public consultation paper on these issues, entitled *National Greenhouse and Energy Reporting Act 2007 and Carbon Pollution Reduction Scheme—external audit consultation paper,* released by the Department of Climate Change in October 2008 and available on its website www.climatechange.com.au. In this paper, the Government sought further stakeholder input on possible standards for the conduct of emissions audits and options for using existing frameworks for recognition of auditors. Before finalising audit guidelines under the NGER Act, the Government will consider submissions on the paper with a view to developing audit guidelines to be made under the NGER Act in early 2009.

## Policy position 7.25

Audits under the Carbon Pollution Reduction Scheme will be carried out in accordance with guidelines made under the *National Greenhouse and Energy Reporting Act 2007*. The Government will finalise the standards (if any) to be referenced in these guidelines after considering submissions made in response to its public consultation paper, *National Greenhouse and Energy Reporting Act 2007 and Carbon Pollution Reduction Scheme external audit consultation paper*.

# 7.5.2 Auditor expertise and qualifications

In addition to developing relevant guidelines, the Government's preference in the Green Paper was to establish an accreditation system for auditors, the form and nature of which would be determined following further consultation with the industry.

#### **Green Paper position**

All third-party assurance providers would be accredited to ensure the development of a pool of properly trained and qualified providers. The form and nature of accreditation (including whether it is conducted by the Government or by a non-government body) would be determined after further consultation, with a view to lowering compliance costs.

A number of submissions highlighted concerns around the availability of resources to meet the demand for audit services arising from the Scheme. For example, Boral stated:

Whatever process is eventually agreed for assurance and verification, it must be consistent with the ability of the market to provide that service in a timely, and cost-effective manner. (Submission 595, p. 8)

Origin Energy stated:

We urge the government to work with the auditing industry to ensure sufficient resources are in place to meet the anticipated audit demand for NGER/CPRS. (Submission 815, p. 51)

The Government recognises that the development of a large pool of skilled emissions auditors is critical to support the Scheme, and especially to smooth the Scheme's introduction. The Government also recognises the link between the required skills and expertise of accredited auditors under the Scheme and the availability of audit resources in the marketplace. For example, a narrower specification of the expertise required to undertake emissions audits under the Scheme may mean that fewer resources would be available in the market to meet demand. Nevertheless, the expertise and quality of audit professionals will be integral to establishing the credibility of emissions data, and therefore the credibility of the Scheme.

Audit resources available in the market place are expected to grow strongly in response to the commencement of the first NGERS reporting year on 1 July 2008, and in anticipation of the upcoming audit requirements for the Scheme. International audit resources, such as those servicing the European Emissions Trading Scheme, are also likely to be available to be utilised in the Australian context given the different compliance timelines for both Schemes.

Some stakeholder submissions indicated a preference for more broadly defined auditor requirements, reflecting the view that there may be a variety of professions that are able to conduct an emissions audit, for instance engineering firms (for example, JAS-ANZ, Submission 434; Association of Consulting Engineers Australia, Submission 690, and the International Emissions Union Trading Association, Submission 658). Meanwhile other stakeholders, particularly those from the finance and accounting sectors, indicated that similar qualifications for audit practitioners and registration requirements as provided in the *Corporations Act 2001* and regulated by ASIC, would be desirable in order to ensure the integrity of the audit system (KPMG, Submission 545).

All third-party emissions auditors will be registered to ensure the development of a pool of properly trained and qualified providers. The form and nature of registration (including whether it is conducted by the Government or a non-government body) will be finalised following the consideration of submissions in response to the public consultation paper *National Greenhouse and Energy Reporting Act 2007 and Carbon Pollution Reduction Scheme—external audit paper*.

# 7.6 Compliance and enforcement

To comply with their obligations under the Scheme, liable entities will have to surrender, for each financial year, a number of permits equal to their annual emissions under the Scheme. The Scheme regulator will have a range of compliance, investigative and enforcement powers and a range of mechanisms to respond proportionately to non-compliance with the Scheme. This section outlines how a liable entity will meet its obligations and the enforcement provisions that will be important to ensure that the Scheme achieves its objectives.

# 7.6.1 Compliance year

In the Green Paper the Government discussed whether the Scheme should operate on the basis of an Australian financial year or a calendar year. Noting that NGERS has already commenced operation on a financial year basis consistent with Australia's international reporting under the Kyoto Protocol, the Green Paper set out the Government's preference for the Scheme to operate on the basis of an Australian financial year.

#### **Green Paper position**

The scheme would operate on a financial-year basis.

Submissions generally supported the operation of the Scheme on an Australian financial year basis to be consistent with the NGERS compliance year. A small number of stakeholders raised the issue of alternative compliance years under the Scheme to align with their reporting obligations in other regimes.

The Government also noted in the Green Paper that there would be technical constraints in changing from the NGERS financial year approach, given that the current reporting year began in July 2008. Therefore, the Scheme will operate on an Australian financial year basis.

A number of submissions requested that the Government clarify the start date for the Scheme to provide certainty regarding the commencement of the Scheme. Recognising this, the Government confirms that the Scheme will commence operation on 1 July 2010.

The Scheme will operate on an Australian financial-year basis, commencing on 1 July 2010.

# 7.6.2 Eligible compliance permits

Only eligible compliance permits can be surrendered to meet an entity's obligations under the Scheme. Eligible compliance permits include both carbon pollution permits issued by the Scheme regulator, and eligible international units.

Chapter 11 discusses and finalises the Government's positions in relation to the acceptance of eligible international units and other permits acceptable under the Scheme. The types of eligible compliance permits that will be accepted from the commencement of the Scheme are set out below.

#### Policy position 7.28

The types of eligible compliance permits that will be accepted from the commencement of the Scheme are:

- carbon pollution permits
- certified emission reduction units (except temporary and long-term certified emission reduction units)
- emission reduction units
- removal units.

## 7.6.3 Compliance timeline

To comply with their obligations under the Scheme, liable entities must:

- register as a reporting entity under NGERS
- report covered emissions to the Scheme regulator by 31 October each year following the reporting year
- surrender eligible compliance permits by 15 December.

In the Green Paper, the Government set out its preferred approach to managing the compliance process timeline following the end of the compliance year under the Scheme.

#### **Green Paper position**

The final date for the annual surrender of eligible compliance permits would be a fixed time after the final date for emissions reporting. At scheme commencement, this period would be six weeks.

In the Green Paper, the Government expressed a preference for a period of six weeks after the final date for emissions reporting, before the final date for the surrender of permits. Few stakeholders commented directly on the surrender timetable set out in the Green Paper.

The Government proposed the six week timeframe in the Green Paper to allow enough time for the Scheme regulator to collate emissions reports for publication, review audit reports, and for liable entities to access the permit market to acquire permits to meet their obligations under the Scheme.

An entity's permit obligation under the Scheme will be the total of their liable emissions for the relevant compliance year. Entities will be required to report their emissions to the Scheme regulator by 31 October each year. Entities will then have to surrender eligible compliance permits to match their emissions for the relevant year by 15 December. This process will give liable entities time to access the permit market and price cap arrangements described in Chapter 8 (the purchase of emission permits from the Scheme regulator at a fixed price), before the final date for surrender under the Scheme.

The following diagram provides a simple overview of the key dates in the compliance process for liable entities:



In the event that a liable entity fails to lodge an emissions report with the Scheme regulator for a given compliance year, or the Scheme regulator has reason to believe that a lodged report is inaccurate, the Scheme regulator will have the power to assess an entity's emissions for a given compliance year and require the surrender of the correct number of compliance permits. Where the Scheme regulator issues such an assessment, the liable entity would be advised of the timeframe within which it is required to surrender the correct number of permits. If an entity disagrees with an assessment made by the Scheme regulator, the liable entity will be able to apply for a review of that assessment. In the first instance, the Scheme regulator will undertake an internal review of the assessment, and if not satisfied with the outcome, the liable entity will be able to apply for review of the regulator's decision by the Administrative Appeals Tribunal.

In the Green Paper, the Government proposed to allow entities the option of surrendering permits throughout the year to meet their end-of-year obligations. However, the Government also emphasised that to ensure the integrity of the surrender process, once a permit had been surrendered by an entity, it would not be able to be 'revived' or re-used under the Scheme.

If an entity surrenders more permits than required to meet its obligation in a compliance year, subject to any banking limitations that would otherwise apply, the permits would be carried over to help meet the entity's obligation in the next compliance year. Under all circumstances, permits, once surrendered, will not be able to be 'revived' from their surrendered status for the purpose of holding or transfer.

#### Policy position 7.29

Liable entities will be required to report emissions to the Scheme regulator by 31 October each year following the reporting (financial) year.

The final date for the annual surrender of permits for an entity will be 15 December each year.

Liable entities will be permitted to surrender permits at any time before the annual surrender deadline to meet their end-of-year obligations.

If an entity surrenders more permits than required to meet its obligation in a compliance year, these permits will be carried over to help meet the entity's obligation in the next compliance year. Under all circumstances, permits, once surrendered, will not be able to be 'revived' from their surrendered status for the purpose of holding or transfer.

# 7.6.4 Enforcement

Effective enforcement arrangements will be vital to achieving the objectives of the Scheme. Non-compliance with obligations (be it misreporting or failure to surrender permits) could bring the Scheme into disrepute and undermine its environmental integrity.

A broad outline of possible approaches to compliance and enforcement is provided in this section.

In the Green Paper, the Government suggested that the Scheme regulator should be given a range of investigative and enforcement powers and a range of mechanisms to respond proportionately to non-compliance with the Scheme.

#### **Green Paper position**

The scheme regulator would be given a range of compliance investigative and enforcement powers, and a broad range of mechanisms to respond proportionately to non-compliance under the scheme.

The scheme regulator would be able to exchange information with the Australian Government, state and territory governments, and international regulators.

Compliance and enforcement provisions, including penalties, would be finalised over the remainder of 2008.

Relatively few submissions addressed the proposed enforcement regime. A number of submissions referred to the need for clear regulatory roles and powers, recognition of the compliance cost of obligations and a robust compliance and enforcement regime to underpin confidence in the Scheme. Several stakeholders, including Engineers Australia (Submission 322) the Investment and Financial Services Association (Submission 338) and Origin Energy (Submission 815), supported the preferred position. Several other stakeholders, including Westpac, noted that they are looking forward to receiving additional information on this aspect of the Scheme.

The Scheme regulator will have a range of investigative and enforcement powers, and a range of mechanisms to respond proportionately to non-compliance with the Scheme, including civil penalty and criminal provisions. The Scheme regulator will also have information gathering and monitoring powers of a kind which is appropriate for this type of regulator function.

A penalty for non-compliance will be imposed on liable entities if they fail to surrender sufficient permits. To be effective, this penalty will need to be significantly above the cost of compliance under the Scheme. The penalty under the Scheme will comprise both an administrative (financial) penalty and a continuing obligation to surrender compliance permits for any permit shortfall.

The administrative penalty will be:

- (i) an amount prescribed in regulations for the relevant compliance year; and
- (ii) if no amount is prescribed, or the regulations are disallowed, an amount equal to the benchmark average auction price for permits auctioned in the previous financial year, plus 10 per cent (this amount will also be the maximum amount that could be prescribed under (i) above).

Failure to pay this penalty will result in a debt to the Commonwealth. In addition, interest will accrue on this debt and shortfalls will be published. The penalty will not apply if an assessment is successfully challenged.
In addition to paying the administrative penalty for non-compliance under the Scheme, the obligation to surrender the required number of permits will continue under a 'make good' provision, with these permits to be surrendered in the next compliance year. The compliance status of liable entities will also be published by the Scheme regulator to encourage compliance under the Scheme.

Exposure draft legislation setting out the Scheme will include other penalty provisions to ensure the integrity of the Scheme.

#### Policy position 7.30

The Scheme regulator will have a range of compliance, investigative and enforcement powers and a range of mechanisms, including civil penalty and criminal provisions, to respond proportionately to non-compliance with the Scheme.

An administrative penalty will be imposed on liable entities if they fail to surrender sufficient permits. The penalty will be:

- (i) an amount prescribed in the regulations for the relevant compliance year; and
- (ii) if no amount is prescribed, or the regulations are disallowed, an amount equal to the benchmark average auction price for permits auctioned in the previous financial year, plus 10 per cent (and this amount will also be the maximum amount that could be prescribed under (i) above).

In addition to the administrative penalty, the obligation to surrender permits to meet any shortfall will continue under a 'make-good' requirement, with permits to be surrendered in the next compliance year.

#### 7.6.5 Voluntary surrender

The Government proposed in the Green Paper that the voluntary surrender of permits should be allowed under the Scheme to allow parties to contribute to stronger national climate change mitigation, regardless of whether they have obligations under the Scheme. In making this proposal, the Government noted that voluntary surrender would reduce the number of permits available to liable entities to meet their obligations and would raise the price of permits, but that this action was a reflection of the legitimate value placed on voluntary surrender. The Government expressed the following preference in the Green Paper.

#### **Green Paper position**

Any entity or individual would be allowed to voluntarily surrender permits regardless of whether they have obligations under the scheme.

While some submissions supported the Government's preference to allow voluntary surrender, some submissions (Climate Friendly, Submission 62) requested that the Government clarify the relationship between the Scheme and the voluntary market; for example, they wanted to know how the Government would treat permits that had been voluntarily surrendered by a holder.

The Green Paper did not consider how the Government would treat permits that had been voluntarily surrendered; specifically, it did not consider whether the voluntary surrender of a permit would be tied to an obligation on the Government to 'cancel' an eligible international unit. The Green Paper indicated, however, that carbon pollution permits would be nominally backed at the national level by eligible international units, but would not be explicitly tied to eligible international units.

In addition, the Green Paper did not address whether or what types of eligible international units could be voluntarily surrendered under the Scheme, or how they would be treated by the Government. How the Government treats permits voluntarily surrendered under the Scheme will determine if the surrendered permits will contribute to Australia's obligations under the Kyoto Protocol.

The Kyoto Protocol allows for the voluntary 'cancellation' of Kyoto units. Once an eligible international unit has been put into the voluntary cancellation account it cannot be removed or swapped with a different permit. Unlike an eligible international unit that is put into the retirement account, an eligible international unit that is put into the voluntary cancellation account count towards discharge of Australia's obligations under Article 3 of the Kyoto Protocol. Voluntary cancellation is therefore a way of increasing Australia's contribution to the global mitigation effort, beyond the commitment agreed to in international negotiations.

To give effect to the Government's preference in the Green Paper and to provide clarity to voluntary market participants, where an entity voluntarily surrenders any type of eligible international unit in the national registry, that unit will be cancelled by the Scheme regulator and not used by the Australian Government to meet its international obligations under the Kyoto Protocol. Further, when a carbon pollution permit is voluntarily surrendered under the Scheme, the Government will cancel a Kyoto unit before the end of the Kyoto True-up period. These approaches will ensure that the voluntary surrender of either a carbon pollution permit or an eligible international unit will increase Australia's contribution to the global mitigation effort, above and beyond the commitment agreed to in international negotiations.

In the Green Paper, the Government did not outline whether there would be any limits on the ability for permit holders to voluntarily surrender carbon pollution permits or eligible international units. A small number of submissions suggested that government commitments to accept voluntary surrender of permits under these terms could create additional scarcity in the Australian permit market, raising permit prices and compliance costs for other liable entities (ESAA, Submission 715).

Demand for voluntary surrender is likely to be driven by private firms or non-government organisations which would like to encourage more abatement than the Scheme trajectory will achieve. The demand for voluntary surrender of these permits is likely to be price sensitive, with the number of permits voluntarily surrendered under the Scheme reducing as the permit price rises.

For these reasons, the Government believes that concerns raised in submissions do not provide sufficient justification for preventing voluntary surrender of permits from leading to real abatement, as intended by those who may wish to voluntarily surrender carbon pollution permits or eligible international units. Therefore, the Government will not impose any quantitative restriction on voluntary surrender at this time. Finally, the Scheme will not initially allow for the voluntary surrender of permits other than carbon pollution permits or eligible international units. This approach would exclude the voluntary surrender of permits that form the currency of other domestic or regional emissions trading Schemes such as European emissions allowances (EUAs) or New Zealand units (NZUs).

For further information regarding offsets and the Scheme, see Chapter 6.

#### Policy position 7.31

Any entity or individual will be allowed to voluntarily surrender carbon pollution permits or eligible international units regardless of whether they have obligations under the Scheme.

Where an entity voluntarily surrenders an eligible international unit in the national registry, that permit will be cancelled and not used by the Australian Government to meet its international obligations under the Kyoto Protocol.

Where an entity voluntarily surrenders a carbon pollution permit, the Government will cancel an eligible international unit held by the Government by the end of the Kyoto true-up period.

No quantitative limit will be imposed on voluntary surrender at this time.

Permits other than carbon pollution permits and eligible international units will not be accepted for voluntary surrender.

## 7.7 National registry

A national registry will be established to track the ownership of eligible compliance permits under the Scheme and to manage their surrender and cancellation. The registry would be used by a range of parties, including liable entities, brokers and the public, to hold, transfer and surrender permits and to view public information.

Online access to the registry will enable companies and individuals holding an account to use the registry to perform a number of functions under the Scheme, including:

- receiving carbon pollution permits purchased at primary auctions or via allocation
- transferring carbon pollution permits or eligible international units to other account holders
- surrendering eligible compliance permits where they have obligations to do so under the Scheme
- voluntarily surrendering carbon pollution permits or eligible international units.

The national registry will also facilitate the management of Australia's holdings of eligible international units. It will perform important functions to ensure that Australia meets its obligations under the Kyoto Protocol, such as the accurate accounting of issuance, holding, transfer, acquisition, cancellation and retirement of eligible international units (that is,

emission reduction units, certified emission reductions, assigned amount units and removal units). Appendix C provides further details on those operations.

## 7.7.1 Timing

The Government will complete technical work on the establishment of the national registry by the end of 2008, following detailed testing with the United Nations Framework Convention on Climate Change (UNFCCC) international transaction log. While technical work on the registry will be complete by the end of 2008, Australia will not be able to participate in international emissions trading until it has satisfied specific eligibility criteria (see Appendix C).

From mid 2009, private entities will be able to apply to the Government to open accounts in the national registry to take receipt of, and transfer, eligible international units that entities purchase from the international carbon market.

The registry will then need to be developed and tested throughout 2009 to incorporate the issuance and management of carbon pollution permits and other functions to underpin the operation of the Scheme. Development and testing will be completed before the first auction of carbon pollution permits in early 2010.

Once legislation establishing the Scheme comes into force, the registry will be administered by the Scheme regulator. Until that time, the registry will be managed by the Australian Government Department of Climate Change.

## 7.7.2 Opening an account

To hold a carbon pollution permit or an eligible international unit, companies and individuals will need to open an account in the registry. To open an account, companies and individuals will have to apply to the Government (providing relevant information to establish their identity) and to pay any relevant fees.

All legal and natural persons (for example, companies and individuals) will be able to hold accounts in the registry, regardless of whether they have obligations under the Scheme, subject only to the verification of their identity and measures to prevent criminal activity. Entities that have obligations under the Scheme must open an account in the registry in order to acquire and surrender eligible compliance permits under the Scheme.

## 7.7.3 Transaction of permits

The Scheme regulator will issue all carbon pollution permits under the Scheme. Some of these permits will be auctioned and, in limited cases, allocated to participants (see Chapters 12 and 13). Entities that acquire eligible international units or carbon pollution permits (via auction or allocation) will be free to hold or sell those permits to other entities holding an account in the registry. Each permit will be identified and tracked using a unique identification number allocated to it by the registry and transferred electronically between account holders. While the registry will act as a mechanism for the transfer of permits, it will not facilitate payment or contracts for transfers, which will occur outside the registry.

The registry will keep a record of all transactions and permit holdings of each account holder and will be the ultimate source of proof of ownership of permits under the Scheme. The registry will not track the trading of subsidiary instruments such as futures contracts or subsidiary interests that may be traded in relation to eligible compliance permits. The registry would only be required to log any transfer of legal title that results from the creation and trade of these instruments. Furthermore, the registry will not record charges held over permits as security against another debt.

## 7.7.4 Reporting and disclosure of information

Internally, one of the registry's main reporting functions will be to generate compliance reports for the Scheme regulator, following the final date for surrender of permits for a given compliance period. The reports will indicate which entities have surrendered enough permits to meet their obligations under the Scheme and which entities have a shortfall.

The registry will also be an important source of information to increase the efficiency of the permit market and the transparency of the Scheme. To fulfil these goals, the registry will generate the following information for publication by the Scheme regulator as soon as practicable following the final surrender date for each compliance year:

- the total number of permits issued under the price cap arrangements (see Chapter 8)
- the total number of permits banked and borrowed
- the total number and type of eligible compliance permits surrendered under the Scheme and total permit shortfalls (if any)
- the number and type of eligible compliance permits surrendered by each liable entity
- permit shortfalls for each liable entity (if any), including the amount of any shortfall, the proportion of any shortfall relative to that entity's obligations for that compliance year and information relating to the payment of any administrative penalties
- each liable entity's compliance status under the Scheme.

The registry would also publish information on the status of Australia's commitment period reserve holdings, and procedures that would apply should Australia breach the commitment period reserve set out under the Kyoto Protocol (see Chapter 11 and Appendix C for further information regarding the commitment period reserve).

As part of Australia's obligations under the Kyoto Protocol, the Scheme regulator will also be required to publish some information held in the national registry in relation to the number and type of eligible international units held in the national registry. The information that must be published in accordance with Australia's Kyoto Protocol obligations is set out in Appendix C and includes the names and contact details of entities holding accounts in the national registry and the total quantity of eligible international units held, transferred, cancelled or retired in the national registry.

#### Policy position 7.32

To hold a carbon pollution permit or an eligible international unit, companies and individuals will need to open an account in the registry.

To open an account, companies and individuals will have to apply to the Government (providing relevant information to establish their identity) and pay any relevant fees.

<sup>1</sup> World Resources Institute, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), 2004, p. 17. For example, financial control usually exists if the company has the right to the majority of benefits of the operation, however these rights are conveyed. Similarly, a company is considered to financially control an operation if it retains the majority risks and rewards of ownership of the operation's assets.

<sup>2</sup> ASX Listing Rule 4.1—Periodic Disclosure. http://www.asx.com.au/supervision/rules\_guidance/listing\_rules1.htm.

## 8 Carbon markets

The development of a stable, well-informed and efficient carbon market will allow the Carbon Pollution Reduction Scheme to achieve emissions reductions in a cost-effective way. This chapter discusses the Government's approach to promoting the rapid development of an efficient carbon market.

The Carbon Pollution Reduction Scheme 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.

- Section 8.1 discusses the development of the carbon market.
- Section 8.2 discusses the importance of transparent and secure property rights.
- Section 8.3 describes the elements of an efficient market.
- Section 8.4 examines mechanisms, such as banking and borrowing, that give market actors intertemporal flexibility (that is, flexibility over time).
- Section 8.5 describes Scheme elements that will promote competition and prevent market manipulation.
- Section 8.6 discusses price formation, price volatility and price caps.

## 8.1 Development of the carbon market

The rapid development of a stable, well-informed and efficient carbon market, which is appropriately monitored and regulated to guard against market manipulation, will allow the Scheme to achieve emissions reductions in a cost-effective way.

#### 8.1.1 Importance of an efficient market

As with any market, the carbon market will involve transaction costs, or the use of resources that might have been used productively elsewhere. In a well-designed market, transaction costs would normally fall over time as financial intermediaries and other service providers develop new financial products and find ways to deliver services more efficiently.

The Australian Financial Markets Association noted the importance of market development in its supplementary submission in response to the Green Paper:

The market development process involves the implementation of practical processes and infrastructure to bring together buyers and sellers in an efficient and orderly manner; research analysis and associated systems to estimate future prices and facilitate trading and investment decisions; and risk management products and markets to facilitate the transfer of risk and management of uncertainty. (Submission 1023, p. 2)

An efficient carbon market, including secondary and derivatives markets facilitated by financial intermediaries, will enable the economy to reduce emissions cost-effectively. It will:

- provide a reliable price signal to enable business to make informed investment decisions
- *channel permits to highest value use* to enable entities liable under the Scheme to obtain permits at competitive prices when they are required
- *provide carbon risk management services* to enable liable entities to secure forward prices, finance market transactions and insure against adverse conditions.

## 8.1.2 Elements of an efficient market

Market efficiency involves two interdependent elements: allocative efficiency and efficient price discovery (or informational efficiency).

Allocative efficiency refers to the market's capacity to channel resources—in this case, carbon pollution permits—to their highest value uses across the economy and through time at low cost and with minimal risk. That is, emissions are reduced by those best placed to abate, at the best time. A market that achieves these objectives is allocatively efficient.

For permits to flow to their highest value uses, the carbon price also needs to reflect all available information. Provision of relevant market information and predictable medium-term policy will assist Scheme participants and others to identify and understand the overall supply and demand conditions for permits, facilitating efficient price discovery. This will produce a reliable price signal that businesses can use to inform their investment decisions.

A carbon market that promotes allocative efficiency and efficient price discovery will have the following elements:

- *Transparent and secure property rights.* If property rights are secure, market actors can have confidence that they will receive the benefits flowing from their investments. Investors will be less likely to take commercial risks if property rights can be easily overturned or are ill defined.
- *Well-informed market participants and a stable and transparent policy framework.* Provision of relevant market information and predictable medium-term policy will assist financial market analysts and Scheme participants to identify and understand the overall supply and demand conditions for permits, allowing efficient price discovery. Price discovery will be more efficient if the market is given significant advance notice of changes to the climate change policy framework.
- *Intertemporal flexibility*. Intertemporal flexibility is the ability of liable entities to shift the timing of their emissions and abatement activities to reduce their costs. Three elements

could increase intertemporal flexibility: banking of permits, borrowing of permits and the length of compliance periods.

• *Competition and freedom from manipulation.* A well-designed market will be difficult to manipulate through collusion or price fixing.

A carbon market with these elements will develop more rapidly and will foster the development of new financial products and services, which will allow the Scheme to achieve emissions reductions in a cost-effective way. These elements are discussed in more detail below.

## 8.2 Transparent and secure property rights

This section describes the characteristics of carbon pollution permits issued under the Scheme.

The permit will be the basic unit of compliance and trade in the Scheme. The Green Paper posed two basic regulatory design options:

- Option 1—a permit or unit designed to provide a high level of legal and financial certainty
- Option 2—a permit or unit designed as a limited compliance instrument or licence that could be readily extinguished by the Government without providing compensation.

#### **Green Paper position**

A carbon pollution permit (which will be referred to in legislation as an Australian emissions unit) would be an entitlement composed of various 'rights' contained in the carbon pollution reduction legislation. The main rights would be the right to surrender the permit and to transfer it.

The scheme regulator would issue only one type of domestic permit, called an Australian emissions unit (referred to in the Green Paper as a carbon pollution permit).

The carbon pollution permits would be personal property.

There would not be power to extinguish permits without compensation, unless there had been misrepresentation or fraud by the holder against the Australian Government or the scheme regulator in the creation or issue of the permits.

Each permit could be surrendered to discharge scheme obligations relating to the emission of one tonne of carbon dioxide equivalent of greenhouse gas.

Each permit could be surrendered under the scheme only once.

Permits would be transferable.

#### Green paper position (continued)

Permit holders would only be entitled to surrender permits that they hold on the national registry. Legal title would be transferred only by entry in the registry.

The creation of equitable interests in permits would be permitted, as would taking security over them.

Each permit would have a unique identification number and be marked with the first year in which it could validly be surrendered (its 'vintage'). It would not have an expiry date.

The permit would be uncertificated; that is, it would be represented by an electronic entry in the registry rather than by a paper certificate.

Most submissions that addressed this issue supported defining permits to provide a high level of legal and financial certainty, with the characteristics outlined in the Green Paper. However, some environmental organisations argued against providing compensation to emitters for cancelling permits. The Australian Network of Environmental Defender's Offices (ANEDO) noted:

ANEDO has public policy and equity concerns about the characterisation of emissions permits as property rights and the right to compensation ... if a right to compensation is inserted into a federal emissions trading scheme, this will engender a climate where the Commonwealth body administering the scheme will be reluctant to adjust emission levels for fear of the monetary consequences, even where the latest scientific and environmental information calls for a re-adjustment of the cap. (Submission 517, p. 15)

Under Option 1, the legislation implementing the Scheme would not provide any power to extinguish permits without compensation except in the limited circumstances outlined in the Green Paper. This would reduce the risks associated with permits and promote market confidence in and development of the carbon market.

Option 2 might make it easier for the Government to tighten the Scheme cap. However, it has a number of disadvantages. It would reduce the demand for permits with 'vintages' beyond the current year because of the risk that those permits could be cancelled without compensation. This may hamper the emergence of a forward price for permits, reducing the carbon price information available to firms making decisions about how to manage their emissions, and to investors in low-carbon technologies. It could also reduce confidence in a credible government commitment to the Scheme's long-term operation.

The Government has therefore decided to adopt the first design option on the basis that it would promote the development of an efficient and robust carbon market, while maintaining a desirable level of flexibility over cap setting. See Chapter 10 for further discussion of Scheme cap setting and adjustment arrangements.

#### Policy position 8.1

Carbon pollution permits will be personal property.

Each permit can be surrendered to discharge Scheme obligations relating to the emission of one tonne of carbon dioxide equivalent of greenhouse gas.

Each permit will be surrendered under the Scheme only once.

There will be no power in the legislation to involuntarily extinguish or for a court to order the relinquishment of permits without compensation, except where the permits have been obtained through misrepresentation or fraud.

Permits, other than those issued under the price cap arrangements (see Section 8.6.2), will be transferable.

Permit holders will be entitled to surrender only permits that are entered on the national registry. Legal title will be transferred only by entry in the registry.

The creation of equitable interests in permits will be permitted, as will taking security over them.

Each permit will have a unique identification number and will be marked with the first year in which it can validly be surrendered (its 'vintage'). It will not have an expiry date.

The permit will be represented by an electronic entry in the registry, rather than by a paper certificate.

# 8.3 A well-informed market with a stable and transparent policy framework

For permits to flow to their highest value uses, the carbon price also needs to reflect all available information. This will provide a price signal that will inform business investment.

Provision of relevant market information and predictable medium-term policy will assist financial market analysts and Scheme participants to identify and understand the overall supply and demand conditions for permits, allowing efficient price discovery.

Therefore, it is important that the Government provide an appropriate level of guidance over price-relevant features of the Scheme. This will assist in efficient price discovery and allow business to make informed investment decisions.

In a system with little or no international linkage, the interaction between the cap and the demand for permits is the primary determinant of the carbon price: the more stringent the Scheme cap, the higher the price, all other things being equal. However, as discussed in Chapter 11, the Government has decided to allow unlimited imports of certain types of international units from the start of the Scheme and to review the scope for exporting permits over time.

If the international price is below the domestic price, there will be 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 domestic 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 Scheme 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 Scheme cap will remain a key determinant of domestic prices until such time as the restriction on exports is lifted or the international and domestic price is equalised.

Scheme caps will be set in accordance with the indicative national emissions trajectory (see Chapter 4) which in turn reflects Australia's international obligations. The ambition of the national targets will in turn determine the national effort. Stringent national targets might result in Australian business and the Australian Government having to purchase eligible international units from offshore to meet international obligations. This would provide access to low cost abatement while transferring wealth out of Australia. For this reason, while the effect of Scheme caps on the cost of compliance to individual businesses will diminish, the approach to cap setting will remain critical to the overall cost to the Australian economy.

## 8.3.1 Release of price-relevant information

In a properly functioning market, participants have incentives to seek out and analyse relevant information. However, some information is known only to the Government. The Government can promote efficient price discovery by providing price-relevant information to the market in a timely manner and ensuring that the information is available to the whole market. If information is provided to only some market participants, those market 'insiders' would enjoy an informational advantage over other participants.

The Energy Supply Association of Australia noted:

Data and information publication will play a crucial role in allowing liable entities and other Scheme participants to form rational views on prevailing demand and supply. It is suggested that this market-relevant information be published in a frequent and timely fashion to assist Scheme participants. (Submission 715, p. 11)

The Government has taken into account the suggestions of stakeholders. Box 8.1 sets out the relevant information on Scheme operations, emissions, participants and compliance that the Government intends to make publicly available.

## Box 8.1: Price-relevant information to be made publicly available

Type of information to be made publicly available	Details
Information about liable entities	The names of all liable entities, with an indication of whether a particular entity has opted into the Scheme or is required to surrender permits.
Information about auctions	The auction process (this will be included in a legislative instrument).
	The auction results for each vintage, including quantities sold and final settlement prices to be published as soon as feasible, and no later than seven days after the close of the auction.
	The benchmark average auction price.
Information about administratively allocated permits	The recipients and the number and vintages of permits allocated to each—the regulator will be required to publish this information as soon as feasible, and no later than seven days after the allocation.
	The total permits allocated for each category (emissions-intensive trade-exposed and strongly affected industries) and the total for each emissions-intensive trade-exposed activity—the regulator will be required to publish this information quarterly.
Information about reforestation and synthetic greenhouse gas destruction	Permits issued for reforestation and synthetic greenhouse gas destruction activities—the regulator will be required to publish this information quarterly.
Information about emissions and	Emissions reported by each liable entity.
permits	Total emissions reported by all liable entities.
	Types of estimation methodologies used.
	Any uncertainty estimates.
	The number of permits banked and borrowed.
	The number and types of eligible compliance units surrendered by each liable entity.
	Shortfalls by liable entities, including each liable entity that has a shortfall and the amount of the shortfall, the proportion of that shortfall relative to the liable entity's required permits for that year, and payment of administrative penalties.
	Each liable entity's compliance status.
	Total shortfalls for the year.
Information relating to the permit registry	For domestic carbon pollution permits, the names of account holders and their contact details.
	For international eligible emissions units, the information required to be published under international arrangements, which includes the account name and a summary of the various eligible international units held, transferred, cancelled or retired in the registry.
	A concise description of the characteristics of various units that will be acceptable for surrender under the Australian Scheme.
	Any enforceable undertakings obtained by the regulator.
	Information about how close Australia is to breaching its commitment period reserve and information about the procedures that apply in those circumstances.
	The regulator will establish a public register of Scheme forests, which will include information about the location of each forest, projected sequestration for each forest, and other information required by participants in the permit market to ensure accountability and transparency.
Other relevant information	Holders of permits will be required to report when they and their associates have 5 per cent or more of a particular vintage—the regulator will be required to publish this information as soon as practicable after receipt.
	The minister will be required to table the report of the independent advisory committee constituted to undertake the strategic review every five years.
	The Australian Government's response to recommendations in the report of the independent advisory committee will have to be tabled.
	Any direction to the regulator by the minister will be published as soon as practicable after the direction is given.

## 8.3.2 Predictable medium-term policy framework

Price discovery will be more efficient if the market is given significant advance notice of changes to the Scheme policy framework. This will allow the market time to factor changes into future prices and to adjust investment decisions accordingly.

Submissions in response to the Green Paper were highly supportive of the Government's proposal for medium-term policy certainty and market guidance. The Investment and Financial Services Association noted:

A well functioning, fully informed and open carbon market will allow the scheme to achieve efficient price discovery and emissions reductions in a cost-effective way. (Submission 846, p. 3)

This was echoed by BP Australia:

A well-functioning market and its resulting forward carbon price expectations is a particular need in the oil & gas sector, with its long development timelines and requirements of significant upfront capital investment. (Submission 355, p. 6)

Box 8.2 lists the information for which the Government will provide medium-term policy certainty.

. . .

Box 8.2: Guidance over medium-term policy framework		
Policy influencing emissions demand and supply	Market guidance: final positions	
Medium-term national emissions target range for 2020 and indicative national emissions trajectory	This White Paper announces a medium-term national target range and an indicative national emissions trajectory for 2010–11 to 2012–13, to provide broad guidance on the pathway towards the medium-term target range (see Chapter 4).	
Expansion of sectoral coverage	The Government will make a decision in 2013 on the inclusion of agriculture in the Scheme in 2015.	
Changes to carbon accounting rules	Scheme participants will be given five years notice of any rule changes that would have a material impact on the supply or demand for permits, such as changes to gas coverage or to the global warming potentials of covered gases (see Chapter 7).	
Caps	Scheme caps will be set and announced for a minimum period of five years at any time or may be extended to the end of any international commitment period, with Scheme caps extended by one year, each year, as required to maintain a minimum five-year certainty period (see Chapter 10).	
Gateways	The Government intends to provide up to 10 years of gateways beyond the minimum five years of certain Scheme caps, taking into account the progress of international negotiations (see Chapter 10).	
Measurement methodology	Appropriate notice will be given before mandatory minimum standards for emissions estimation methodologies are imposed or increased (see Chapter 7).	
	Notice will be provided before major changes to estimation methodologies take effect. This will occur in the context of the five-yearly Scheme reviews (see Chapter 7).	
	Smaller revisions to methodologies will be made on an annual basis (see Chapter 7).	
	Should an entity elect to use a more precise emissions estimation method than required, that methodology will be the minimum methodology for that entity for a period of four years (Chapter 7).	
International linking	In general, five years notice will be provided for changes in international linking arrangements (including the types of international units that are recognised for compliance and the export of permits—see Chapter 11).	

## 8.4 Intertemporal flexibility

Intertemporal flexibility refers to the extent to which liable entities can shift the timing of their emissions and abatement activities to reduce their costs. Three elements could increase the Scheme's intertemporal flexibility:

- *Banking*. Allowing permits from the current year cap to be set aside for use in future years would reduce allowable emissions in the current year while increasing future year emissions.
- *Borrowing*. Allowing permits from future year caps to be brought forward for surrender in the current year would reduce allowable emissions in future years while increasing current year emissions.
- *Length of compliance periods.* Requiring liable entities to surrender permits for emissions only every two or more years would allow them to budget over the period.

The Scheme could allow no, some or complete intertemporal flexibility.

In a scheme with no intertemporal flexibility, permits would be issued each year up to the level of the annual cap and there would be no banking or borrowing. Annual emissions limits would be binding and inflexible in the absence of international linking. This could be described as a 'quarantined cap' system.

In a scheme with complete intertemporal flexibility, the sum of annual allowable permits over, for example, 20 years, would be issued to the market, and banking and borrowing would be unlimited. This is referred to as a 'carbon budget' approach. Under this approach, aggregate emissions could not exceed the total carbon budget for the defined period. However, within that overall constraint, annual emissions limits would be non-binding.

In between these extremes are systems that set annual caps but then allow some intertemporal flexibility between them. If unlimited banking and borrowing were allowed or the surrender period were extended for many years, the Scheme would resemble the carbon budget approach. If banking and borrowing were not allowed and the surrender period was only one year, the scheme would resemble a quarantined cap system.

In general, intertemporal flexibility will improve allocative efficiency by allowing abatement to occur at the time that imposes the lowest relative cost on the economy. It will also have the effect of smoothing prices over time. However, even with intertemporal flexibility, the carbon price can display some volatility.

Figure 8.1 illustrates an experimental analysis of the smoothing impact on the price of permits in a system with short-term banking and borrowing. It compares the behaviour of two different types of annual pollution permits. The brown line shows the price path of a uniform annual instrument; that is, a permit that is valid from 1 January to 31 December. The yellow line represents a pair of overlapping period instruments: one is valid from 1 January to 31 December and the other is valid from 1 July to 30 June. With the overlapping instrument, if there is a permit shortage due to unexpected events, firms can bank or borrow (from the adjacent period), which smooths the price path. In the single instrument case, the inability to bank or borrow results in large price swings and a loss of economic efficiency.



Figure 8.1: Price volatility in a system with short-term banking and borrowing

Source: CR Plott, 'Presentation to Workshop', Canberra, March 2008.

However, intertemporal flexibility (most particularly borrowing) must be carefully balanced against the need to ensure the ongoing credibility of the Scheme. For example, as discussed below, excessive borrowing could lead to speculation that the Government will be forced to issue additional permits in subsequent years. To maintain credibility, the Government must maintain some control over the trend and time-path of emissions.

The following sections consider the three intertemporal flexibility mechanisms: banking, borrowing and the length of compliance periods.

#### 8.4.1 Banking

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. Box 8.3 outlines banking arrangements in international and other Australian schemes.

#### Green paper position

Unlimited banking of permits would be allowed under the scheme.

#### Box 8.3: International and other Australian scheme proposals for banking

The National Emissions Trading Taskforce<sup>1</sup> and *The Garnaut Climate Change Review*: *Final report*<sup>2</sup> recommended unlimited banking. The New Zealand Emissions Trading Scheme also incorporates unlimited banking.<sup>3</sup> The Garnaut Final Report noted that, if a transitional price cap is used, permits should not be allowed to be banked between the transition period and the subsequent period. Similarly, the Task Group on Emissions Trading<sup>4</sup> suggested that some limitations on banking might be needed in the early years of the scheme while a transitional price cap is in place.

The European Union Emissions Trading Scheme allows banking between years, but not between Phase I and Phase II.<sup>5</sup> However, banking is allowed between Phase II and Phase  $III.^{6}$ 

There are three broad banking options:

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

Most of the many submissions that commented on banking supported unlimited banking. Westpac noted:

Banking provides compliance flexibility, encourages early emission reductions and reduces compliance costs. It also allows firms to manage emissions profiles more smoothly from year to year to reflect production variations and the business cycle.

The ability to bank carbon permits for use in future years would also serve to smooth out price volatility, helping to avoid situations where an excess of permits at any given time might depress the carbon price. (Submission 695, p. 5)

The Clean Energy Council stated:

There should be unlimited banking under the scheme. Enabling participants to bank permits will provide flexibility to the market and will assist in the development of a forward market for permits, while at the same time reducing the price volatility in that market. It will allow participants to efficiently manage their risk positions and make informed decisions on investments. (Submission 829, p. 8)

However, some submissions opposed unlimited banking. Greenpeace contended:

Unlimited banking will mean that the exact amount of GHG emissions permitted in any given period is out of the control of the government. This will create a problem if the Australian Government decides that a deeper cut in emissions is required to avoid catastrophic climate change. (Submission 692, p. 13)

As with all measures that improve intertemporal 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 provides greater flexibility both for market participants and, to some extent, for the Government. A more flexible market reduces the pressure on the Government to predict the economy's demand for permits accurately from one year to the next.

Banking provisions will reduce Scheme implementation risks. First, banking in general 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).<sup>7</sup>

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 in some submissions. Setting permits aside for future use reduces current supply (increasing the current price), but increases future supply (decreasing the future price). While this smooths the price in the long term, the initial price rise makes it more difficult to engineer an 'easy' start to the Scheme with relatively low prices.<sup>8</sup>

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)
- 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 (see Box 8.4). This cyclical pricing behaviour could lead to less efficient market outcomes and reduce confidence in the system overall.

#### Box 8.4: Price path of European Union allowances in Phase I of the European Union Emissions Trading Scheme

Phase I of the EU ETS (2005–2007) was a trial period to allow firms and governments to gain experience in emissions trading. Figure 8.2 illustrates the price path in Phase I, based on a recent analysis by the Pew Center on Global Climate Change.<sup>9</sup>





 $\operatorname{Notes}^{10}$ 

1 January 2005: Commencement of Phase I of the EU ETS. Allowances to emitters were overallocated in Phase I due to a lack of accurate data in advance of the Scheme.

2 Phase II allowances introduced and commenced trading.

3 Release of 2005 verified emissions data by several member states led to a market realisation of the overallocation and a steep decline in allowance prices.

4 The prices of Phase I and Phase II allowances diverged because there were no provisions for banking Phase I allowances for use in Phase II.

5 The price of Phase I allowances trended towards zero as allowances approached their expiry date. Phase I units could not be banked for use beyond 31 December 2007 (the end of Phase I). Source: Point Carbon website.

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 may lead to difficulties in meeting Australia's international emissions reduction targets.

Overall, the advantages of banking (reducing overall costs, encouraging early and efficient abatement activity, providing greater flexibility to participants and to governments) outweigh the disadvantages (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 Government will allow unlimited banking from Scheme commencement.

#### **Policy position 8.2**

Unlimited banking of permits will be allowed under the Scheme (except those accessed under the price cap arrangements).

#### 8.4.2 Borrowing

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).

#### Green paper proposal

The scheme would permit a limited amount of short-term borrowing.

#### Box 8.5: International and other Australian scheme proposals for borrowing

No Australian proposals or international schemes have recommended unlimited long-term borrowing.

In principle, the Garnaut Final Report allowed for some limited long-term borrowing. This was to be administered by the regulator through the official 'lending' of permits from future years (but not exceeding five years in advance), with an obligation to repay the loan at a future date. The regulator would lend only amounts that would not destabilise the current or future market. In this way, the regulator would be an 'independent carbon bank' that determines how many permits can be lent, and to whom, based on an assessment of creditworthiness.

The European Union Emissions Trading Scheme has a form of unlimited short-term borrowing.<sup>11</sup> Allowances from the following year are issued early and may be used for surrender in the current year.

The Regional Clean Air Incentives Market (RECLAIM) scheme in the United States has a form of limited short-term borrowing: half of the following year's units are issued for use in surrender in the current year.<sup>12</sup>

The National Emissions Trading Taskforce recommended a more limited form of short-term borrowing: up to 1 per cent of an entity's obligation could be met by using the following year's vintage permits.<sup>13</sup>

The Renewable Energy Target<sup>14</sup>, the NSW Greenhouse Gas Reduction Scheme<sup>15</sup> and the Australian Capital Territory Greenhouse Gas Abatement Scheme<sup>16</sup> also have a form of short-term borrowing. Liable entities are allowed a limited shortfall without penalty, as long as the shortfall is made up in the following year.

The Task Group on Emissions Trading recommended that there be no provision for borrowing.<sup>17</sup>

There are five broad borrowing options:

- unlimited short-term and long-term borrowing
- unlimited short-term borrowing only
- limited short-term borrowing only
- the regulator to administer limited short-term borrowing only
- no short-term or long-term borrowing.

Most of the substantial number of submissions that commented on borrowing supported short-term limited borrowing. However, some submissions argued that unlimited borrowing should be allowed, while others argued that no borrowing should be allowed.

The Clean Energy Council noted that there should be a limit placed on borrowing:

There are risks associated with unlimited borrowing from future obligations. The credibility of the market would be severely harmed should a business collapse owning a large number of borrowed certificates. To limit this risk borrowing should be limited to a very small percentage of the annual liability to cover administrative oversights in balancing annual liability. (Submission 829, p. 8)

However, Professor Grafton and Dr Ward from the Crawford School of Economics and Government at the Australian National University were in favour of unlimited long-term borrowing for efficiency reasons:

A failure to allow long-term borrowing reduces the economic efficiency of a carbon pollution permit scheme and, thus, increases the costs of achieving a given emissions reduction. Since achieving emissions reductions will cost the Australian economy multiple billions of dollars, any unnecessary constraint on efficiency such as the proposed restriction on borrowing is inadvisable. (Submission 152, p. 1)

Other stakeholders were opposed to any form of borrowing on environmental grounds. Climate Action Network Australia stated:

to prevent erosion of environmental effectiveness, borrowing must not be allowed. This ensures that urgent emission reductions occur now, rather than being postponed to become the burden of future generations. (Submission 272, p. 5)

Likewise, ANEDO stated:

ANEDO also has significant reservations with the Green Paper's recommendation that the borrowing of permits should be permitted ... Our primary reasoning is that the risk of emitters defaulting on these loans in future periods has the potential to severely undermine the environmental integrity of the scheme, which is an unacceptable risk. Large defaults on 'loans' would inevitably lead to a failure to meet emissions targets. (Submission 517, p. 17)

#### 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, as noted by Professor Grafton and Dr Ward and the Minerals Council of Australia (Submission 884, p. 17).

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. 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 why the Government does not intend to allow it.

#### 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.

Under current international arrangements borrowing is not allowed between commitment periods. Short-term borrowing in the Scheme will allow for a limited number of future vintage permits to be used in the current commitment period. Where it is expected that there will be net borrowing, the Government will need to manage the difference between Scheme design and the international architecture. This could be achieved by purchasing eligible international units that can be surrendered in the first commitment period to account for the additional emissions associated with borrowed permits. In the second commitment period, the Government would be able to sell surplus eligible international units because emissions in that period will be lower than they otherwise would have been in the absence of borrowing. This is primarily a concern in the last year of the commitment period. However, it is not likely to be a problem, as net banking in the Scheme is expected over time and borrowing is limited to 5 per cent of the next year's vintage (see 'Quantum of borrowing allowance' below).

#### Policy position 8.3

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 submissions commented on this issue.

#### Green paper position

Borrowing would take the form of allowing liable entities to discharge up to a certain percentage (less than 5 per cent) of their obligations by surrendering carbon pollution permits dated from the following year.

Option 1 is to limit borrowing by allowing liable entities to have a shortfall in permits. The shortfall would attract no penalty as long as it is made up in the following year. Allowing delayed compliance in this way may increase the probability of noncompliance in the subsequent period and therefore compromise the environmental integrity of the Scheme. There is also a risk that such a provision could be seen as disadvantaging firms that meet Scheme obligations without borrowing. Although this form of borrowing has not proved problematic so far in either the Renewable Energy Target<sup>18</sup> or the Australian Capital Territory Greenhouse Gas Abatement Scheme<sup>19</sup>, other methods of limiting borrowing can achieve the same outcome without the associated fairness or environmental integrity problems.

Further options are to limit borrowing by:

- allowing only a certain percentage of an entity's obligation to be met using the following year's vintage of permits (Option 2)
- marking a subset of a year's vintage as available for use in the previous year's compliance period (Option 3)
- having the regulator administer borrowing arrangements (Option 4).

Option 2 and Option 3 deliver an equivalent level of borrowing, as may be required for output surges. However, Option 2 is superior to Option 3 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 this option, it would be difficult to create a squeeze in supply, as that would require the acquisition of the entire year's allocation. Option 2 is also simpler to implement, as it does not subdivide vintages into different categories.

Option 4 is to have the regulator administer the level of borrowing in accordance with the needs of the market, as proposed in the Garnaut Final 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 Government will allow a certain percentage of an entity's obligation to be met using the following year's vintage (Option 2).

#### **Policy position 8.4**

Borrowing will take the form of allowing liable entities to discharge up to a certain percentage of their obligations by surrendering carbon pollution permits dated from the following year.

#### 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 Green Paper preferred position was to limit the amount of short-term borrowing to 5 per cent of an entity's obligations. In relation to determining the limit on borrowing, the Green Paper noted that there would need to be careful analysis of the natural fluctuation of the covered sources of emissions and the allowance of international units into the domestic Scheme.

#### Green paper proposal

The exact percentage should be subject to further investigation and should be considered in conjunction with decisions about the level of the initial scheme caps.

Many stakeholders in favour of short-term borrowing were in favour of the 5 per cent proposed in the Green Paper:

ANZ notes that the Green Paper is proposing that borrowing would be limited to no more than 5 per cent subject to further decisions pending the level of the scheme caps. We would support this proposal as the borrowing of higher amounts would limit the ability of the market to establish a clear price for carbon as well as hindering the development of secondary markets. (Submission 504, p. 4)

Some submissions suggested alternative amounts. The International Emissions Trading Association noted:

Allowing firms to borrow up to 7% of their obligation requirement from future periods will help industry manage capital investments appropriately. (Submission 658, p. 7)

As noted above, 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 market participants squeezing a thin pre–surrender date market.

#### Box 8.6: Borrowing and the variability in emissions covered under the Scheme

The limit on short-term borrowing should be sufficient to take account of output surges in the economy. One way to measure output surges is to examine the historic variations in national emissions from sources covered under the Scheme.

The blue line in Figure 8.3 represents the trend in cumulative emissions growth from covered sources (from 1990 levels). This can be viewed as the 'expected' growth of emissions covered under the Scheme. The yellow line represents the actual cumulative emissions growth from covered sources (from 1990 levels).

Since 1990, emissions from sources covered under the Scheme, have not fluctuated from trend by more than around 2 per cent annually. For borrowing purposes, the relevant years are those in which actual emissions are higher than the trend growth in emissions. This indicates that there has been a surge in the level of emissions (above the level entities may have been expecting), which may leave liable entities with a potential shortfall in permits and require them to borrow from the adjacent period.

That said, the introduction of a comprehensive carbon price for the first time may increase the level of uncertainty surrounding these estimates.



#### Figure 8.3: Variability in emissions covered under the Scheme

The information in Box 8.6 suggests that a borrowing limit of 5 per cent would provide a more than 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.

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.

Allowing borrowing up to 5 per cent strikes the appropriate balance between providing a buffer against output surges and squeezes while maintaining the environmental integrity of the Scheme. This limit achieves market flexibility and smooths price shocks, while avoiding damage to the credibility of the medium-term national target.

#### **Policy position 8.5**

The Scheme will allow liable entities to discharge up to 5 per cent of their obligations by surrendering carbon pollution permits dated from the following year.

## 8.4.3 Length of compliance period

Flexibility through time could also be offered through the length of the compliance period (the period of time over which emissions must be recorded to determine entities' obligations). At the end of the compliance period, entities that have Scheme obligations will be required to surrender permits equivalent to their emissions over the compliance period.

#### Green paper proposal

The scheme would have a compliance period of one year.

Box 8.7 discusses compliance periods in other emissions trading schemes and government compliance regimes.

# Box 8.7: Compliance periods in other emissions trading schemes and government compliance regimes

Some forms of Australian Government taxation use compliance periods of less than one year for certain entities; for example, instalments of income tax and other tax under the pay-as-you-go and the goods and services tax systems.

The National Emissions Trading Taskforce recommended a one-year scheme compliance period.<sup>20</sup> Phase I and Phase II of the European Union Emissions Trading Scheme<sup>21</sup> and the New Zealand Emissions Trading Scheme<sup>22</sup> also have one-year compliance periods.

The United States Regional Greenhouse Gas Initiative has a compliance period of three years. The period can be extended in response to a 'safety valve' trigger event (that is, if the permit price exceeds a set amount for a certain period).<sup>23</sup>

At the national level, the current Kyoto Protocol commitment period is five years from 2008 to 2012.

There are three broad options for the length of the compliance period:

- less than one year (for example, three or six months)
- one year
- more than one year.

Most of the relatively few submissions that commented on this issue were in favour of a one-year compliance period. Transfield Services noted that:

a one-year (annual) compliance period is most logical for a range of reasons, including ... consistency with other similar schemes overseas and also for consistency with normal company accounting cycles. (Submission 478, p. 4)

However, a small number of submissions supported a longer compliance period. The International Emissions Trading Agency stated:

IETA believes an important means of keeping costs down is to provide for sufficiently long compliance periods. Multiyear compliance periods, in which allowances are fungible across years within the same compliance period, provides a level of flexibility that will assist companies not only in long-term planning, but also in adjusting to unanticipated events. (Submission 658, p. 7)

While intertemporal flexibility is important, it must be carefully assessed because of the risk it poses to the credibility of the Scheme. Compliance periods that are longer than one year would give greater flexibility in emissions between the years in a compliance period, but would not address flexibility between compliance periods. By the end of a long compliance period, a significant mismatch between the supply of, and demand for, permits in the Scheme may develop.

Allowances were overallocated in Phase I of the EU ETS. Because there was no banking facility for those permits, their price fell to almost zero by the end of Phase I.<sup>24</sup> However, in theory, the opposite is also possible—liable entities might use up permits in the early years, leading to a shortage and an ensuing price spike at the end of the period. Furthermore, longer compliance periods might exacerbate intertemporal problems, as pressure has longer to build up between surrender dates. The larger build-up of obligations over this longer period may also increase the risk of noncompliance and undermine the Scheme.

Annual compliance periods are consistent with other schemes and proposals. They are also consistent with financial-year reporting arrangements. While shorter compliance periods (less than one year) could be considered at a later time, the gains in market efficiency must be weighed carefully against the larger compliance burden on both government and liable entities. Furthermore, entities will be allowed to surrender permits at any time to create shorter effective compliance periods if they choose (see Chapter 7).

For reasons of international consistency and risk management, the Government prefers annual compliance periods over longer or shorter compliance periods.

The arrangements for reforestation are considered separately in Chapter 6.

#### **Policy position 8.6**

The Scheme will have a compliance period of one financial year.

## 8.5 Competitive market free of manipulation

Financial intermediaries have an important role in providing risk management services to liable entities and facilitating the development of an efficient carbon market. However, many stakeholders raised concerns that financial market participants will engage in market manipulation, anti-competitive behaviour, or both, to profit at the expense of liable entities. The Construction, Forestry, Mining and Energy Union stated:

There is also concern about the extent of participation by financial intermediaries. While the participation of financial markets players is important in giving flexibility and liquidity to the market, extreme caution must be taken to ensure that the degree of intermediation (to be more specific, speculation) does not actually result in unnecessary volatility and higher overall system costs. (Submission 774, p. 17)

The Australian Food and Grocery Council noted:

Allowing financial markets to participate in the auctioning process invites the possibility of manipulation over the carbon trading system, leaving genuine purchasers of permits at a disadvantage. While there is a potential need for financial services in an established carbon market the Government should ensure that an appropriate level of control is maintained to prevent distortion. (Submission 831, p. 14)

EnergyAustralia raised similar concerns:

EnergyAustralia has concerns however; that there may be a shortage of permits for liable parties if manipulative speculators purchase permits and distort the market in the

short term. By creating an artificial scarcity within the market, the costs of the scheme may escalate from costs that would ordinarily be the case. (Submission 339, p. 6)

There is no particular reason to believe that financial intermediaries will be more likely to manipulate the market than other participants. While financial intermediaries often have large financial resources so too do many of the liable entities under the Scheme. Indeed, the best protection against manipulative behaviour will come from broad participation in the Scheme, which will result in many buyers and sellers in the market. In this context the Government's decision to allow unlimited imports of certain international units is important. Access to this alternative carbon market will further limit the capacity of entities to manipulate the market. Nevertheless, it will be important that the carbon market and auction, like other financial markets, are appropriately monitored and regulated, that market operations are sufficiently transparent, and that liable entities have a wide and flexible range of options for sourcing permits. The following section outlines the elements of the Scheme designed to achieve this objective.

## 8.5.1 Appropriate monitoring and regulation of the carbon market

The Australian Securities and Investments Commission (ASIC) will be given the necessary legal power to investigate and prosecute market manipulation in the carbon market. To that end, the preferred position expressed in the Green Paper was that permits be financial products for the purposes of the *Corporations Act 2001*, but some adjustment to that regime may be required to fit the characteristics of carbon pollution permits.

Policies aimed at curbing undesirable behaviour should not unduly disrupt the development of a deep and liquid market. By offering liable entities a wide range of sellers and sources of permits at competitive prices, such a market will be a defence against that type of behaviour.

#### Green paper proposal

The permit would be a financial product for the purposes of the *Corporations Act 2001*, but some adjustment to that regime may be required to fit the characteristics of permits.

Services provided in relation to permits will be similar to those for financial products, such as shares and debentures. Those services are expected to include the provision of trading advice, brokerage services, trading platforms and support services. It is expected that derivatives over permits will be financial products for the purposes of the Corporations Act as it currently stands, and there is no proposal to change this.

Permits, like other financial products, could also be the subject of market misconduct, including market manipulation and insider trading. Market manipulation includes manipulation of the auction process (for example, through collusion) and of prices in the secondary market. There is also the possibility of cornering the market for permits close to the time for surrender.

To ensure the ongoing credibility of the Scheme, the Government must consider the regulation of services and other conduct relating to permits. Two options for achieving this were discussed in the Green Paper:

- creating a new regulatory regime
- using the existing regulatory infrastructure provided in Chapter 7 of the Corporations Act, which addresses, among other things, the regulation of formal financial markets, market misconduct and financial advice.

A new regulatory regime could be more easily tailored to the distinctive features of the Scheme and permits, while adapting the existing regulatory system would be more likely to achieve consistency with the regulation of similar financial services and avoid unfair competition.

In addition to any specific role for ASIC, the Australian Competition and Consumer Commission would exercise its economy-wide oversight of anti-competitive conduct.

A number of submissions referred to the monitoring and regulation of the carbon market. Several stakeholders, including the Law Institute of Victoria and the Investment and Financial Services Association, supported the inclusion of permits as financial products for the purpose of the Corporations Act, with appropriate adjustments to fit permits' characteristics.

Other stakeholders, including the Australian Bankers Association, Westpac and the Australian Financial Markets Association, opposed treating permits as financial products for the purpose of the Corporations Act. They proposed that permits should be treated as commodities. The reasons put forward included that traders are relatively uninterested in permits (compared to derivatives), that relevant conduct and information are within the Government's control, that other environmental instruments are not financial products, that comparable instruments in the United Kingdom are treated as commodities, that compliance costs would be high, and that retail clients would be unlikely to trade permits. Those who opposed treating permits as financial products generally understood that the Government may nevertheless want the market misconduct provisions to apply.

There were also comments on the operation of the over-the-counter markets. The Australian Bankers Association noted:

The carbon market should be established to function and operate similar to other Over-The-Counter (OTC) markets with standardisation of contract documentation and widely accepted market conventions to facilitate emissions trading. (Submission 1036, p. 6)

The options (including those that arise from the submissions received) are:

- Option 1—make permits financial products for the purposes of the Corporations Act (with adjustments to fit the nature of the product and ensure no unnecessary compliance costs)
- Option 2-design a market integrity and investor protection regime specifically for permits

• Option 3—treat permits as commodities, rather than as financial instruments, with the economy-wide provisions in the *Trade Practices Act 1974* applying, but not the provisions in the Corporations Act that specifically address financial services and markets.

Option 1 would provide a comprehensive regulatory regime, including regulation of markets in permits and advice about their purchase, and market misconduct in relation to them. It is clear that some adjustment would need to be made to this regime—one example is in relation to product disclosure. The regulator could publish information about the permit's characteristics and provide substantial information relevant to its pricing (see Section 8.3.1). Adjustments of this nature that recognise the specific nature of permits and Kyoto units could significantly reduce the compliance burden associated with the regime, without materially diluting its effectiveness.

Option 2 would involve creating a regulatory regime from the beginning. A new regulatory regime could be tailored to the distinctive features of the Scheme and permits, but would require additional legislation and resources to implement and enforce. Compared with adapting the existing regulatory system, Option 2 would be less likely to achieve consistency with the regulation of similar financial services and avoid unfair competition, which might arise from differences in regulation. Option 2 would also involved increased administrative costs for both the Government and market participants, and would fail to capitalise on the existing expertise of ASIC.

Option 3 would involve application only of the Trade Practices Act regime (which involves economy-wide provisions relating to competition and consumer protection). This relies on the characterisation of permits as commodities, rather than as financial instruments. On this basis, detailed market misconduct provisions (for example, those in the Corporations Act) would not apply. The submissions of the Australian Bankers Association, Westpac and the Australian Financial Markets Association supported this option.

The Government considers that a strong regulatory regime is important to reduce the risk of market manipulation and misconduct. It considers that reliance on the Trade Practices Act alone would provide insufficient protection against such risks. For example, this option would exclude the appropriately more detailed regulation of carbon market exchanges, financial service providers and particular kinds of financial market misconduct. There is also a strong case for consistency in the regulation of the provision of similar services.

The Government has decided that permits and eligible international units will be regulated as financial products under Chapter 7 of the Corporations Act and the *Australian Securities and Investments Commission Act 2001* with appropriate adjustments to fit the characteristics of permits and avoid unnecessary compliance costs. Consultation will be required with stakeholders on the details of any adjustments to the general financial services regime.

Rejection of the third option does not mean that the Trade Practices Act has no application in this context. It will remain one element in the regulatory response to the possibility of market misconduct and anti-competitive behaviour.

#### Policy position 8.7

The permit and eligible international units will be regulated as financial products for the purposes of the *Corporations Act 2001* and the *Australian Securities and Investments Commission Act 2001*, but with some adjustments to that regime to fit the characteristics of permits and to ensure no unnecessary compliance costs. The Government will consult further on those adjustments.

## 8.5.2 Appropriate monitoring and regulation of auctions

To encourage participation and provide a competitive bidding field at auction, there will be no restriction on who may participate at auctions. However, to ensure that auctions are competitive and free of manipulation, the Government will take steps to:

- ensure that bidders are credible, to avoid spurious bidding strategies aimed at manipulating the auction price
- limit the maximum parcel of permits that can be purchased by any one bidder to 25 per cent of the available amount.

Chapter 9 gives further information on auction design and the auction process.

### 8.5.3 Information disclosure

By releasing information about Scheme operations, emissions, participants and compliance (as noted in Section 8.3.1), the Government will ensure that information is made available to the whole market, reducing the possibility of 'market insiders' enjoying an informational advantage over other Scheme participants.

For example, holders of permits will be required to report when they and their associates have 5 per cent or more of a particular vintage of permits. That requirement, which reduces the possibility of entities 'cornering' the market for permits, was raised by the Commonwealth Bank in its submission:

there could be substantial holder requirements equivalent to those for the share market where holders of permits in excess of 5 per cent or more of total issued permits must disclose their ownership positions. This will help ensure there is no unintended 'cornering' of the market which could distort the price. Such protections will likely be in the national interest, especially in the early stages of the market's development which will make it inherently attractive to opportunistic traders. (Submission 338, p. 2)

The disclosure of this information is aimed at promoting efficient price discovery, but will also establish an environment in which access to price relevant information is available to all market participants.

#### 8.5.4 Permit sources

The rapid development of the carbon market will give liable entities a wide and varied range of sources of permits for compliance purposes. A wide choice of sources will guard against

any one financial market participant (or several participants in collusion) monopolising the permit supply to profit at the expense of liable entities.

The number of permit suppliers in the market could be affected by placing restrictions on the categories of legal entities that are able to hold and trade carbon pollution permits.

One option is to restrict the right to own carbon pollution permits, or to participate in the first auction, to liable entities and those that have received free permit allocations. This option has been proposed as a means of limiting demand, and hence the price of permits.

Another option is to limit ownership of permits to Australian legal entities and persons. This would prevent foreign control of Australian permits and could limit manipulation, by foreign entities, of the carbon price in Australia's Scheme. Any restrictions would need to be consistent with Australia's international trade obligations.

#### Green paper position

A permit could be held and traded by any legal or natural person (subject to verification of identity and measures to prevent criminal activity).

There would be no restriction on foreign ownership of permits, apart from any that might apply under a law other than the scheme legislation.

Most stakeholders supported having no restrictions on who could hold a permit. The Australian Conservation Foundation (ACF) noted:

ACF supports there being no restrictions on the ownership of permits to ensure an open, deep and liquid market. (Submission 809, p. 31)

The risks associated with limiting who can hold permits were noted by the Law Institute of Victoria (LIV):

The LIV believes that the first option [restrict to liable entities] is likely to lead to an inefficient and potentially collusive market. The LIV submits that the third option [unrestricted access to permits] should be adopted in the interests of fostering a more efficient market. The LIV acknowledges that the potential disadvantage of the third option is that prices might reach artificial levels because non-participants may acquire permits. However any concerns in relation to artificial prices should be sufficiently addressed by existing laws ... (Submission 195, pp. 5–6)

However a number of submissions, mainly from entities that would be liable under the Scheme, raised concerns that allowing anyone to hold permits could lead to market manipulation or anti-competitive behaviour/speculation which would drive up permit prices. Some stakeholders recommended that only liable entities or Australian-owned entities be allowed to hold permits. EnergyAustralia noted:

there may be a shortage of permits for liable parties if manipulative speculators purchase permits and distort the market in the short-term ... to avoid this, Energy Australia suggests that the Government consider options such as limiting participation to liable parties or their authorised agents at some or all auctions. (Submission 339, p. 6) This was echoed by the Australian Food and Grocery Council (AFGC):

The AFGC recommends that access to the auction process be limited to businesses that have a direct obligation under the CPRS for a fixed interim period. (Submission 831, p. 7)

As discussed in Section 8.1, financial intermediaries have an important role in the development of an efficient carbon market. The Government must be careful that policies aimed at curbing undesirable behaviour do not unduly disrupt the development of a deep and liquid market. An effective secondary market is a defence against anti-competitive or manipulative behaviour, and restrictions on who can hold a carbon pollution permit could disrupt its development. If permit holding were restricted to liable entities, larger liable entities with their own carbon trading and financing arms could take advantage of the absence of financial market competition at the expense of smaller liable entities or government revenue. Furthermore, some smaller entities and potential new entrants might prefer to have financial intermediaries purchase permits on their behalf. Restrictions on ownership would also be difficult to enforce, as liable entities could purchase permits on behalf of others.

Restricting foreign ownership would not prevent market misconduct or manipulation, and ownership restrictions would be difficult to enforce. More importantly, that approach could reduce the liquidity and hence the efficiency of the carbon market.

Therefore, with the aim of promoting the rapid development of the carbon market, the Government will not place restrictions on who may hold permits.

#### Policy position 8.8

Permits may be held and traded by any legal or natural person (subject to verification of identity and measures to prevent criminal activity).

There will be no restriction on foreign ownership of permits, apart from any that might apply under a law other than the Scheme legislation.

#### Box 8.8: Options for sourcing permits

Along with placing no restrictions on who may hold permits, the Scheme will have other flexibility mechanisms to ensure a wide range of permit sources for liable entities:

- Open participation at auction—there will be no restrictions on who may participate at auctions (see Chapter 9)
- Unlimited imports of eligible international units—entities will be able to access the international market to obtain carbon credits (see Chapter 11)
- Limited borrowing—liable entities will be able to discharge up to 5 per cent of their obligations by surrendering permits dated from the following year (see Section 8.4.2)
- Government auction at year end—at least one auction of the year's vintage will be held after the end of the financial year in the lead-up to the final surrender date (this will be within one month prior to the final surrender date) (see Chapter 9)
- A price cap—liable entities will have access to an unlimited store of additional permits, issued by the Government at pre-specified prices for the first five years of Scheme operation (see Section 8.6.2)
- Reforestation and synthetic greenhouse gas destruction—permits will be issued for reforestation and synthetic greenhouse gas destruction activities, which will create another source of permits (see Chapter 6).

## 8.6 Prices

Under the Scheme, the carbon price will vary. The Scheme is designed to constrain only the quantity of emissions, while allowing the market to set the carbon price.

## 8.6.1 Price volatility

The price of permits will adjust to reflect changes in market expectations of overall supply and demand for permits—that is, the carbon price will reflect the market's best estimates of both the current and future costs of reducing emissions in accordance with the Scheme cap.

Market expectations about demand will be affected by changes in the cost of abatement technology, economic growth and opportunities for international linking. Expectations about supply will be affected by changes in the stringency of the cap and Scheme coverage. Market expectations will also be influenced by factors that affect financial asset prices more generally, such as inflation and interest rates.

Price variation promotes market efficiency, as it ensures that the price reflects the market's most up-to-date estimates of future emissions reduction costs. Continuous price updates will, on average, lead to smaller adjustments, a smoother price path and better informed investment decisions.

## 8.6.2 Price cap

A price cap is a mechanism for setting the maximum cost of compliance under the Scheme. In theory, a liable entity would be prepared to pay up to the cap price for a permit. If the price of permits rose beyond that point, the entity would access the price cap rather than buy a permit.

#### Use of a price cap

An emissions trading scheme controls the quantity of emissions through the issue of permits and leaves the price to be determined in the carbon market. (In contrast, a carbon tax would control the price of emissions and leave the market to determine the quantity.)

The Government cannot control both the price and the quantity of emissions. The Government controls the supply of permits (emissions) and, to the extent that it targets a certain price, it must change the level of supply. In effect, if the Government targets a particular price, the total quantity of emissions is no longer set by the Scheme cap.

A price cap, then, is a commitment to loosen the Scheme cap if the Scheme cap (as currently set) leads to a market price above a certain predetermined level. This occurs because for every use of the price cap an equivalent number of permits are no longer required to be surrendered, effectively increasing the supply of units.

The purpose of the price cap is to set a maximum cost of compliance for liable entities by providing them the option of a cash payment instead of surrendering permits to discharge their liability under the Scheme. While the price cap will present a powerful economic influence on prices it is not intended to directly place a ceiling on permit price outcomes in the secondary market or at auction. Prices in the secondary market and at auction will fluctuate depending on market conditions and may even exceed the price cap level from time to time. To allow the smooth operation of the market, the Government will not intervene to stop these kinds of temporary price fluctuations. Notwithstanding these fluctuations, liable entities will have certainty over their ultimate maximum costs of compliance.

Figures 8.4 and 8.5 provide a stylised illustration of the implications of a price cap in a single period of carbon constraint without open international linking. Figure 8.4 shows a scenario in which demand for emissions is relatively low compared to the cap, so the market clearing price is below the price cap and the Government takes no action. Figure 8.5 shows a scenario in which demand for emissions is relatively high compared to the cap, so the market clearing price is higher than the price cap. In that scenario, the Government increases the supply until the price is reduced to the price cap level.


Figure 8.4: Price cap set above market clearing price





The combination of unlimited banking and a price cap also adds an intertemporal dimension. If liable entities access the price cap while banking permits for use in future periods, that will create an inventory of permits with which to increase future emissions. Because of this feature, a price cap has the potential to loosen not only the current cap but also future caps.

#### Green paper position

The scheme would have a price cap for the period 2010–11 to 2014–15.

Box 8.9 outlines some price cap arrangements in Australian and international schemes and in other scheme proposals.

### Box 8.9: International and other Australian scheme price cap proposals

Price caps of various forms have been a feature in several emissions trading schemes and proposals.

The National Emissions Trading Taskforce<sup>25</sup> and the Task Group on Emissions Trading<sup>26</sup> recommended that an Australian scheme have a price cap, although both suggested that this arrangement be reviewed over time. The purpose of the price cap was to limit compliance costs and to make them more predictable and stable at the commencement of the scheme.

In the proposed United States emissions trading scheme, a recent revision to the Lieberman–Warner Climate Security Act included an 'emergency off-ramp' provision that aims to prevent excessive carbon allowance price rises.

In the McKibbin–Wilcoxen model, a price cap in the form of additional issuance is a permanent feature of the scheme design.<sup>27</sup>

The current Renewable Energy Target, the New South Wales Greenhouse Gas Reduction Scheme<sup>28</sup>, the Australian Capital Territory Greenhouse Gas Abatement Scheme<sup>29</sup> and the Queensland Gas Scheme<sup>30</sup> all have price caps.

The Garnaut Final Report did not support the use of a price cap because of the potential implications for environmental integrity, international linking and the potential risk and cost to taxpayers. The Garnaut Final Report recommended a transition period from 2010 to 2012, during which permits would be sold at a fixed price.

The EU ETS does not contain a price cap and uses a combination of a high compliance fee and a make-good provision to ensure that caps are met under all circumstances.<sup>31</sup>

The New Zealand Government does not, in principle, support the inclusion of a price cap in the New Zealand Emissions Trading Scheme.

Many stakeholders commented on whether a price cap should be used. They were split over the issue, with liable entities generally for and financial intermediaries and environmental organisations generally against its use. Those in favour of a cap argued that it would reduce upward price risks from introducing the Scheme and reduce implementation risk. TRUenergy recommended that:

A 'safety valve' carbon price cap to apply for at least five years that is designed to avoid permit price shocks caused by unforeseen volatility in the market (for example sudden changes in international policy). (Submission 813, p. 12)

Boral had similar views:

It is important that some 'safety valve' mechanisms are considered included [sic] capping the price of permits until certain milestones are met. Such milestones may

include the migration of a CPRS into a global scheme or at least a point in time when Australia has adjusted to the cost of emissions reduction. (Submission 595, p. 8)

Those against the use of a cap argued that it compromised the integrity of the Scheme and diminished some of the environmental benefits of the Scheme. The Australian Youth Climate Coalition noted:

Any loosening of the scheme through a price cap amounts to a loosening of the government's position and encourages non-compliance ... a price cap undermines the creation of a strong market and investor confidence as it demonstrates willingness of the government to undermine the integrity of the scheme.

A price cap increases the risk that Australia will not meet its international emission reduction obligations. This imposes a greater burden on tax payers as the Government will have to purchase international permits to fulfil Australia's emissions reduction target. (Submission 652, p. 11)

BP Australia had similar views:

BP does not support the use of a price cap. Its use as a cost containment mechanism, as proposed in the Green Paper, potentially sacrifices environmental certainty for price certainty, thereby negating a primary benefit of emissions trading. Once the price cap is hit, the Government is obligated to issue permits, the volume of which has no limit, leading to a breach of the scheme emissions cap. (Submission 355, p. 7)

The main advantage of a price cap is that it reduces upside price risk for liable entities by capping the cost of compliance under the Scheme. It also makes explicit the Government's policy response in the event of extreme pricing outcomes in the market. In this respect, it can help to promote a smoother transition for those covered by the Scheme, and thereby reduce implementation risk.

There are three main disadvantages of a price cap:

- Accessing the price cap would loosen the emissions cap, reducing the environmental integrity of the Scheme. It might even cause a loosening of future emissions caps, further undermining environmental integrity. However, environmental integrity is only seriously compromised if the price cap is set so low that its use is widespread. There is no automatic environmental damage associated with a price cap: the Renewable Energy Target<sup>32</sup> and the New South Wales Greenhouse Gas Abatement Scheme<sup>33</sup> have price caps, but have extremely high levels of Scheme compliance through regular surrender of compliance units or certificates.
- Use of the price cap would increase the likelihood that Australia would have to purchase eligible international units to meet its emissions reduction target. This transfers risks from Scheme participants to taxpayers. The precise cost to taxpayers will be a function of the level of use of the price cap, the cost of international units, the impact on auction revenue of relatively reduced Scheme prices, and any timing differences between payment of the price cap and the purchase of international units. Because of the potential cost to taxpayers, it is important that the price cap be set at a level which is likely to result in the covered sources of emissions meeting their share of the national effort.

• A price cap may complicate linking decisions, and might prove to be an impediment to linking with some schemes (see Chapter 11).

A number of other scheme features also diminish the need for a price cap. As noted in Section 8.4, banking and borrowing are weaker methods of constraining the cost of compliance. The proposal to allow unlimited imported international units to be used for compliance in the Australian Scheme may also suppress prices, depending on international conditions. However, since the international unit price is uncertain, so too is its value as a precisely known cap on Scheme costs (Chapter 11).

While there are risks associated with a price cap, the alternative is essentially to commit to enforcing compliance at any cost. While the principle of allowing the market to operate freely is an important one, an emissions trading scheme is a government-operated system, and some price levels may not be credibly sustained. A price cap can be seen as a way of making explicit the Government's response should the price of permits rise to a level that imposes a significant and unacceptable cost on the economy.

The Government considers it prudent to have some form of price cap in order to avoid extreme prices, at least initially while uncertainty is highest in the Scheme.

# **Policy position 8.9**

The Scheme will have a price cap for the period from 2010–11 to 2014–15.

# Form of price cap

A price cap can take a variety of forms, but the essential element is that, ultimately, a cash payment in lieu of the surrender of permits could discharge an obligation accrued under the Scheme.

A price cap could take two main forms:

- access to an unlimited store of additional permits, issued by the Government at a fixed price
- an administrative penalty for noncompliance.

All emissions trading schemes require some form of penalty for noncompliance (see Chapter 7). If the penalty is in the form of a fixed cash payment in lieu of surrendering permits, it will form an effective price cap in the Scheme. Other forms of compliance penalty might not be effective price caps. Box 8.10 discusses the conditions under which a compliance penalty regime can constitute an effective price cap.

#### Box 8.10: Penalties and make-good provisions

All emissions trading schemes require some form of penalty for noncompliance. However, not all compliance penalty regimes constitute effective price caps.

# Penalties with make-good provisions—not an effective price cap

Compliance penalties usually take the form of a monetary penalty. If a make-good provision is part of the compliance regime, the penalty does not form a price cap mechanism. A make-good provision requires that, in addition to the monetary penalty, the noncompliant liable entity must surrender permits equal to its emissions in order to dispense its obligation.

For example, if a liable entity failed to comply because of the cost of permits, where a make-good provision applied, the entity would be required to pay the compliance penalty and provide permits for surrender in a subsequent period. This would be required regardless of permit cost.

A variation of this arrangement would be for the Government to make good on behalf of noncompliant entities; for example, by buying back an equivalent number of permits in the market to make up the shortfall.

In each case, the integrity of the cap would be maintained, since a unit would have been retired for every emission that occurred within the Scheme. In this way, the cap would not be loosened in the event of payment of the compliance penalty and the price of units would not be affected.

The penalties in the European Union<sup>34</sup> and New Zealand<sup>35</sup> schemes contain make-good provisions and do not perform a price cap function.

#### Penalties without make-good provisions—an effective price cap

A compliance regime without a make-good provision forms an effective price cap. Entities would simply pay a monetary penalty without having to surrender any additional permits. The level of the monetary penalty would then become the level of the price cap in the Scheme.

The current Renewable Energy Target<sup>36</sup>, the New South Wales Greenhouse Gas Reduction Scheme<sup>37</sup>, the Australian Capital Territory Greenhouse Gas Abatement Scheme<sup>38</sup> and the Queensland Gas Scheme<sup>39</sup> all have penalties without make-good provisions, providing effective price caps.

The two forms of price cap have the same basic effect of limiting Scheme compliance costs, although there are some subtle differences.

• Payment of an administrative penalty would not be tax deductible under Australian income tax law. Additional issuance, depending on its legal form, could have different tax implications at the point of surrender.

• An administrative penalty for noncompliance may encourage liable entities to pay higher prices for permits and generate higher levels of compliance within the Scheme caps. Many firms place a high value on their reputation as good corporate citizens, and will want to be seen to be in compliance. Purchase of additional units at a set price would not have those reputational implications.

Some stakeholders in favour of a price cap supported the Government issuing more permits in unlimited quantities at a fixed price. Many stakeholders wanted a combination of the two price caps in the form of a tax-deductible fee. APPEA noted:

APPEA further recommends that the price cap be in the form of a 'fee', not an administrative penalty. (Submission 834, p. 28)

Few stakeholders favoured the administrative penalty for noncompliance.

A tax-deductible fee and the issuing of additional permits at surrender date for a fixed price are identical in economic substance. Both would be identical for tax purposes, represent the same effective loosening of the Scheme cap (as user entities would emit more than otherwise) and be administratively simple to operate. However, issuing additional permits is legislatively simpler to implement and also aligns with the purpose of the price cap mechanism—to explicitly and transparently cap prices at an appropriate level determined by the Government. Furthermore, for reporting purposes, the issuance of permits makes the loosening of the Scheme cap transparent.

Liable entities will have the option of purchasing permits from the Government at a fixed price from the time of the final reporting date for the Scheme (31 October) up until the final surrender date for the Scheme (15 December) to use for the purpose of meeting their obligations under the Scheme. These permits will not be able to be traded or banked for future use.

# Policy position 8.10

The Scheme will have a price cap in the form of access to an unlimited store of additional permits, issued by the Government at a fixed price. Liable entities will have the option of purchasing these permits from the time of the final reporting date for the Scheme up until the final surrender date for the Scheme to use for the purpose of meeting their obligations under the Scheme. These permits would not be able to be traded or banked for future use.

#### Level of price cap

Given that the Scheme will contain a price cap, it is important that the cap is set high enough so that its probability of use is low, while still providing protection against major price shocks.

Figure 8.4 illustrates a price cap set above the market clearing price and designed to be used in rare situations, whereas Figure 8.5 illustrates a price cap set below the market clearing price (which effectively constitutes a carbon tax).

#### Green paper position

The price cap would be set high enough above the expected permit price to ensure a very low probability of use. The precise level would be set taking into account all information about scheme design and the expected abatement costs in the economy.

Submissions in response to the Green Paper were divided about the level of the price cap. Many liable entities were in favour of a low price cap, to ensure a 'soft' transition period at the start of the Scheme.

Xstrata conceptually supports a *price cap* during the initial years of the ETS as an effective way to manage carbon price volatility and any unexpected negative consequences. Any price cap should be credible to constrain costs and ensure a modest carbon price in the initial years as part of a measured start to the scheme. (Submission 593, p. 9)

Many stakeholders stated that, if the Scheme were to have a price cap, it should be set at a level that would minimise its use. The Australian Securities Exchange noted:

Setting the price cap at a level unlikely to be reached is important. Any breach of the price cap ... will not only undermine the environmental integrity of the scheme and the potential for linkages with other schemes but also diminish the effectiveness and value of forward markets. (Submission 811, p. 2)

The Government considers it prudent to have some form of price cap in order to avoid extreme prices, at least initially while uncertainty is highest in the Scheme. To mitigate the risk of compromising the Scheme's environmental integrity, the price cap should be set high enough to deter widespread use. The level of the price cap should also be set to avoid extreme events, such as power stations transferring ownership or shutting down. Given an estimated carbon price of \$23 to \$32 at the start of the Scheme (based on the modelling in *Australia's Low Pollution Future* for the 'CPRS -5' and the 'CPRS -15' scenarios respectively<sup>40</sup>) and the existence of international carbon markets, the Government considers that a price cap of \$40 is appropriate in balancing these requirements.

#### **Policy position 8.11**

The price cap will be set at \$40 and will commence in 2010–11.

#### Rate of growth of price cap

An important consideration is how the price cap should change during the time that it is in place. There are a number of options for changes in the price cap through the transition period to 2014–15:

- no growth in the price cap level (that is, fixed at \$40 for the whole period the price cap is in place)
- growth in the price cap level in line with some measure of prices, such as the expected inflation rate

- growth in line with the expected rate of growth of permit prices in the carbon market
- growth at a rate greater than the expected rate of growth in permit prices in the carbon market.

While stakeholders commented on whether there should be a price cap and the level of the cap, few commented on how the cap should change during the transition period.

The main reason for a price cap is to avoid extreme prices during the initial stages of the Scheme, 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 cap to protect Scheme participants against extreme prices.

Therefore, by the end of the transition period the price cap should not be accessed; that is, the potential for its use is progressively decreased each year of the transition period. This will only be achieved by increasing the price cap level at a rate greater than the expected rate of growth in permit prices in the carbon market (estimated to be 4 per cent in real terms per year<sup>41</sup>). This aligns with the goal of reducing reliance on the price cap as the Scheme is established, and will also make it easier to phase out the price cap at the end of the transition period. Adjusting the price cap level at any other rate would effectively be increasing the opportunity for Scheme participants to access the price cap throughout the transition period.

# Policy position 8.12

The level of the price cap will rise in real terms by 5 per cent per year.

- 3 Climate Change Response (Emissions Trading) Amendment Act 2008.
- 4 Prime Ministerial Task Group on Emissions Trading, *Report of the Task Group on Emissions Trading*, Commonwealth of Australia, 2007.
- 5 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
- 6 Proposal for a Directive of the European Parliament and of the Council 2008/0013 of 23 January 2008 amending Directive 2003/87/EC.
- 7 AD Ellerman and PL Joskow, The *European Union's Emissions Trading Scheme in Perspective*, Pew Center on Global Climate Change, 2008.
- 8 Australia's Low Pollution Future: The Economics of Climate Change Mitigation, Commonwealth of Australia, 2008.
- 9 AD Ellerman and PL Joskow, *The European Union's Emissions Trading Scheme in Perspective*, Pew Center on Global Climate Change, 2008.

<sup>1</sup> National Emissions Trading Taskforce, *Possible Design for a National Greenhouse Gas Emissions Trading Scheme: Final Framework Report on Scheme Design*, 2007.

<sup>2</sup> R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.

- 10 AD Ellerman and PL Joskow, *The European Union's Emissions Trading Scheme in Perspective*, Pew Center on Global Climate Change, 2008.
- 11 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
- 12 Regional Clean Air Markets: http://www.aqmd.gov/RECLAIM/reclaim.html.
- 13 National Emissions Trading Taskforce, *Possible Design for a National Greenhouse Gas Emissions Trading Scheme: Final Framework Report on Scheme Design*, 2007.
- 14 Office of the Renewable Energy Regulator, http://www.orer.gov.au/index.html.
- 15 NSW Greenhouse Gas Reduction Scheme, http://www.greenhousegas.nsw.gov.au
- 16 ACT Greenhouse Gas Abatement Scheme: http://www.icrc.act.gov.au/actgreenhousegasabatementscheme.
- 17 Prime Ministerial Task Group on Emissions Trading, Report of the Task Group on Emissions Trading, Commonwealth of Australia, 2007.
- 18 Office of the Renewable Energy Regulator, http://www.orer.gov.au/index.html.
- 19 ACT Greenhouse Gas Abatement Scheme: http://www.icrc.act.gov.au/actgreenhousegasabatementscheme.
- 20 National Emissions Trading Taskforce, Possible Design for a National Greenhouse Gas Emissions Trading Scheme: Final Framework Report on Scheme Design, 2007.
- 21 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
- 22 Climate Change Response (Emissions Trading) Amendment Act 2008.
- 23 P Cramton, Comments on the RGGI Design, University of Maryland paper, 2007.
- 24 AD Ellerman and PL Joskow, The *European Union's Emissions Trading Scheme in Perspective*, Pew Center on Global Climate Change, 2008.
- 25 National Emissions Trading Taskforce, *Possible Design for a National Greenhouse Gas Emissions Trading Scheme: Final Framework Report on Scheme Design*, 2007.
- 26 Prime Ministerial Task Group on Emissions Trading, *Report of the Task Group on Emissions Trading*, Commonwealth of Australia, 2007.
- 27 W McKibbon and P Wilcoxen, A *Credible Foundation for Long Term International Cooperation on Climate Change*, Lowy Institute for International Policy Working Papers in International Economics, No 1.06, June 2006.
- 28 NSW Greenhouse Gas Reduction Scheme, http://www.greenhousegas.nsw.gov.au.
- 29 ACT Greenhouse Gas Abatement Scheme: http://www.icrc.act.gov.au/actgreenhousegasabatementscheme.
- 30 Queensland 13% Gas Scheme: http://www.13percentgas.qld.gov.au.
- 31 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
- 32 Office of the Renewable Energy Regulator, http://www.orer.gov.au/index.html.
- 33 NSW Greenhouse Gas Reduction Scheme, http://www.greenhousegas.nsw.gov.au.

- 34 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
- 35 New Zealand Government, The Framework for a New Zealand Emissions Trading Scheme, 2007.
- 36 Office of the Renewable Energy Regulator, http://www.orer.gov.au/index.html.
- 37 NSW Greenhouse Gas Reduction Scheme, http://www.greenhousegas.nsw.gov.au.
- 38 ACT Greenhouse Gas Abatement Scheme: http://www.icrc.act.gov.au/actgreenhousegasabatementscheme.
- 39 Queensland 13% Gas Scheme: http://www.13percentgas.qld.gov.au.
- 40 Australia's Low Pollution Future: The Economics of Climate Change Mitigation, Commonwealth of Australia, 2008.
- 41 Australia's Low Pollution Future: The Economics of Climate Change Mitigation, Commonwealth of Australia, 2008.

# 9 Auctioning of Australian carbon pollution permits

Once created, carbon pollution permits within the Scheme cap need to be allocated or released to the market either by administratively allocating them or by auctioning them. Auctioning is an efficient method of allocating permits. The Government has decided that a large proportion of permits will be auctioned, highlighting the importance of auction design.

This chapter analyses the relevant experience in government auctions and sets out the key features of the Carbon Pollution Reduction Scheme auction:

- Section 9.1 describes international and domestic examples of environmental resource auctions.
- Section 9.2 sets out the objectives of the auction.
- Section 9.3 discusses the advantages of auctioning as an allocation method.
- Section 9.4 identifies auction governance arrangements.
- Section 9.5 specifies the auction design features.

# 9.1 International and Australian experience

Although auctions of emissions permits have been relatively rare internationally (see Box 9.1), there is a wealth of relevant Australian and international experience in auctioning scarce public resources.<sup>1</sup> Together, those experiences provide useful insights into auction policy design.

Experience gained from government auctions of scarce resources in Australia and overseas, although not all related specifically to the auction of environmental resources, can be applied to the auction of carbon permits, particularly to the mechanics of the auction process.

# Box 9.1: International experience with environmental market auctions

Examples of auctions in environmental markets include the auction of:

- sulphur dioxide permits, conducted since 1983 as part of the United States Acid Rain Program
- nitrogen oxide allowances, held in Virginia in 2004 and 2005
- emissions permits, held in 2002 under the United Kingdom Emissions Trading Scheme
- emissions permits in Ireland, Hungary, Denmark and Lithuania, held from 2005 to 2007 as part of the first phase of the European Union Emissions Trading Scheme
- emissions permits in North America as part of the Regional Greenhouse Gas Initiative, which held its first auction in September 2008.<sup>2</sup>

Although auctions are increasingly being used in recently proposed schemes and subsequent phases of existing schemes, there is little experience of auctions in which a large percentage of the total number of permits in a scheme are allocated.

Source: Evans & Peck, *Further definition of the auction proposals in the NETT discussions paper*, report to the National Emissions Trading Taskforce, 2007, available at http://www.emissionstrading.net.au.

# 9.2 Objectives of the auction

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

- *Promote allocative efficiency*. A well-designed auction should allocate permits in a way that will best facilitate an efficient carbon market by channelling permits 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 early in the Scheme. That signal should stimulate behavioural change, for example by helping liable entities to manage their emissions obligations and make informed investment decisions. Later, as the secondary market matures, that market will become the main source of information about carbon prices and the influence of the auction will diminish.
- *Raise auction revenue (consistent with other objectives).* 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.

# 9.3 Advantages of auctioning as an allocation method

The Government has decided that a large proportion of carbon pollution permits will be auctioned from the start of the Scheme. This is consistent with the preferred position stated in the Green Paper.

# **Green Paper position**

Allocations would, over the longer term, progressively move towards 100 per cent auctioning as the scheme matures, subject to the provision of transitional assistance for emissions-intensive trade-exposed industries and strongly affected industries.

The Government considers that auctioning permits has a number of advantages over allocating them directly to liable entities, although direct allocations can be used to achieve other policy objectives.

In theory, there should be no difference in efficiency between auctioning permits and allocating them administratively, because permits could be allocated to their highest value use under either system. As long as the permits are fully tradeable and the particular use of the permits does not change current and future permit allocations, firms could trade permits to their highest value use, even if the initial allocation is inefficient.

In practice, because administrative allocations will be made for reasons other than pure efficiency, the initial allocation of permits will not be made to the highest valuing users. Firms will be able to trade permits in the secondary market, but trading costs and information issues mean that this will not be costless. Furthermore, international experience suggests that where permits are issued for free there may initially be some inefficient hoarding by the recipients.

# Box 9.2: International and other Australian scheme proposals for auctions

Several emissions trading models have advocated the use of auctions to distribute permits, including:

- the Task Group on Emissions Trading<sup>3</sup>
- the National Emissions Trading Taskforce<sup>4</sup>
- The Garnaut Climate Change Review: Final report<sup>5</sup>
- New Zealand's emissions trading scheme<sup>6</sup>
- Phase III of the European Union Emissions Trading Scheme<sup>7</sup>
- the Regional Greenhouse Gas Initiative in the United States.<sup>8</sup>

For these reasons, some stakeholders, such as the Australian Financial Markets Association, were in favour of auctioning 100 per cent of permits:

AFMA supports, over the longer term, moving to 100 per cent auctioning. (Submission 550, p. 15)

The Garnaut Final Report also expressed support for the Government's position:

Australia, with its well-established legal, regulatory and administrative structure, is in a favourable position for full auctioning of permits. (Garnaut Final Report, p. 331)

Some stakeholders asserted that auctioning might not result in an equitable allocation. For example, Visy Industries Australia argued against business being required to pay for permits.

The Green Paper's proposal that 100 per cent of permits for emissions are auctioned is not workable, and will place undue burdens on the Australian economy. (Submission 437, p. 12)

However, a small number of stakeholders were opposed to the distribution of permits by administrative allocation. These included the Construction, Forestry, Mining and Energy Union:

The free allocation of permits tends to encourage gaming behaviour by business, leads to windfall financial benefits to some companies and weakens the intended outcome of the CPRS. (Submission 774, p. 20)

The economic efficiency benefits of auctioning make it highly desirable to move progressively towards 100 per cent auctioning of permits over the longer term, as the need to deal with transitional equity considerations is expected to lessen, particularly after a global agreement on carbon emissions reductions. In addition, auctioning permits ensures that the entities who are responsible for high levels of emissions are the ones that pay for the environmental costs (consistent with the 'polluter pays' principle).

The Government has 100 per cent auctioning as a long-term goal, but achieving that goal will be contingent on global events. Some initial administrative allocations will be necessary to reduce the likelihood of carbon leakage in the period before broadly comparable carbon constraints apply internationally, and to provide transitional assistance to these industries. Some administrative allocations of permits will also occur to counter some of the one-off value impacts of a carbon constraint on strongly affected industries.

# Policy position 9.1

Allocations will, over the longer term, progressively move towards 100 per cent auctioning as the Scheme matures, subject to the provision of transitional assistance for emissionsintensive trade-exposed industries and strongly affected industries.

# 9.4 Auction governance arrangements

The Government considers that the Scheme regulator will be best placed to manage ongoing auction policy design and operational matters, with wide discretion prescribed in the legislative framework (see Chapter 16).

However, providing the market with certainty about auction rules will require different arrangements at the start of the Scheme. This is particularly so because the Scheme regulator might not be established in time to develop and consult on a detailed auction strategy before the first auction is held. Until the auction arrangements are established, operational flexibility within clearly specified objectives is desirable, because the auction design is likely to need to be fine tuned over time.

#### **Green Paper position**

The relevant minister would direct the regulator in the early phase of the scheme.

The scheme regulator would later assume all auction policy responsibilities.

The responsibilities of the scheme regulator, auction design, and the relevant minister's power of direction would be reviewed at the five-year review.

The Government has experience in auctioning other forms of property, and has taken into account the governance arrangements operating in those markets. For example, the Australian Office of Financial Management manages an auction process for Treasury Bonds on behalf of the Australian Government. Its governance arrangements are discussed in Box 9.3.

# Box 9.3: Governance arrangements of the Australian Office of Financial Management

The Australian Office of Financial Management (AOFM) is a specialist Australian Government agency responsible for all operational aspects of Australian Government debt management. This includes the issuing of Treasury Bonds and Treasury Notes (a short-term debt instrument used to finance short-term funding needs) and the execution of debt-related derivative transactions. The AOFM is also responsible for managing the Australian Government's cash balance.

Although the AOFM is part of the Department of the Treasury, its finances are separate from those of the Department, as it is a prescribed agency under the *Financial Management and Accountability Act 1997*. It is accountable to the Treasurer and, through him, to the government, the parliament and the public.

# Tender objectives

Treasury Bond issuance is undertaken to maintain liquid and efficient Treasury Bond and Treasury Bond futures markets. Issuing bonds by tender ensures that the process is highly transparent, equitable and competitive. This results in the sale of Treasury Bonds on the most favourable terms possible for the government; that is, the lowest interest cost.

# Box 9.3: Governance arrangements of the Australian Office of Financial Management (continued)

#### Authority to issue

The *Commonwealth Inscribed Stock Act 1911* gives the Treasurer, by delegation from the Governor-General, power to issue Treasury Bonds in such a manner and on such terms and conditions as he directs.

Each year, the AOFM seeks the Treasurer's approval for the total amount of Treasury Bonds to be issued in the next financial year. These details are published in the Australian Government's Budget Papers.

AOFM officers have been authorised to issue Treasury Bonds on behalf of the Treasurer. This gives the AOFM responsibility for all operational matters concerning the issuance of the bonds, including for establishing tender procedures, deciding the bond lines and amounts offered at individual tenders, and the timing of tenders. The AOFM publishes a debt issuance calendar outlining details of expected Treasury Bond tenders. The results of the tenders are published by electronic financial news services and on the AOFM website.

The governance arrangements for auctions need to reflect the limited time that will be available to the regulator from its inception to the first auction. Consistent with the preferred position in the Green Paper, the Government considers that it will be appropriate for the minister to be empowered to make a disallowable legislative instrument determining the auction process and operational rules during calendar years 2010 and 2011. After that time, the regulator will have the power to make such an instrument. In both cases, the primary objectives will be to promote the efficient allocation and price discovery of permits. This arrangement will best provide certainty for business.

It will be more efficient for the regulator to make adjustments to auctions than to require the responsible minister to approve small changes to auction design. Therefore, the regulator would be entitled to determine matters of detail, so long as the auction design was consistent with the auction design specified in the minister's legislative instrument. Auction design decisions and operational rules will be made public.

The roles of the minister and the regulator will be subject to review, as discussed in Chapter 16.

# Policy position 9.2

- The responsible minister will be empowered to determine in a legislative instrument the auction policy and auction operation rules for calendar years 2010 and 2011.
- The regulator will be empowered to determine in a legislative instrument the auction policy and auction operation rules from 1 January 2012 onwards.
- The minister's determination will continue to have effect until it is replaced by an instrument made by the regulator.

# 9.5 Auction design features

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
- minimal fees, charges and other costs of participation (although some rules to ensure that bids are credible will be desirable).

The remainder of this chapter sets out the Government's decisions on a range of auction design features. In arriving at these decisions, the Government has sought to ensure that the development of a deep and liquid secondary market is not compromised.

The Green Paper's detailed proposals on auction design drew heavily on a report on auction design by Evans and Peck, which was commissioned by the National Emissions Trading Taskforce. The Government's final positions on auction design have taken into account that report, stakeholder submissions, and further expert advice from Tradeslot Pty Ltd.<sup>9</sup>

# 9.5.1 Auction frequency

The Green Paper proposal on the frequency of auctions attracted considerable stakeholder comment.

#### **Green Paper position**

Four auctions would be held each financial year, one in each quarter. The Government seeks stakeholder feedback on the relative risks of alternative models, such as annual or weekly auctions.

Three factors are relevant to the auction frequency and auction 'size' (that is, the number of permits sold at auction):

- more frequent auctioning means smaller auction sizes
- auctioning more permits outside a Scheme compliance period means that there are fewer permits remaining for auction within the period, reducing the size of each auction
- the greater the proportion of permits that is administratively allocated, the smaller the size of the auctions

In theory, auctions could be held any number of times each year, for example weekly, quarterly or annually.

# Box 9.4: International and Australian proposals on auction frequency

- The National Emissions Trading Taskforce proposed that auctions be held quarterly.<sup>10</sup>
- The Regional Greenhouse Gas Initiative, which has recently commenced, is to hold its auctions quarterly.<sup>11</sup>
- The Task Group on Emissions Trading made no recommendations on auction frequency.<sup>12</sup>
- The Garnaut Final Report suggested regular auctions on a fixed schedule—weekly, monthly, quarterly or on any other basis that suited market participants.<sup>13</sup>
- No indication of auction frequency has been provided for Phase III of the European Union Emissions Trading Scheme<sup>14</sup>, or for the New Zealand emissions trading scheme.<sup>15</sup>

Several stakeholders requested that auctions be held more frequently than proposed in the Green Paper. For example, Stanwell Corporation Limited stated:

We consider monthly rather than quarterly auctions would provide participants with greater flexibility in managing cash flows while maintaining market depth. (Submission 491, pp. 2–3)

ExxonMobil also expressed support for more frequent auctions:

ExxonMobil supports auctions being held as frequently as practicable (at a minimum monthly). (Submission 254, p. 9)

Frontier Economics, which prepared a report for the National Generators Forum as part of the joint submission from the Energy Supply Association of Australia, National Generators Forum, Energy Retailers Association of Australia and the Australian Pipeline Industry, also argued for more frequent auctions:

On balance, we believe there is a case for more frequent auctions than presented in the Green Paper. Thus, we consider that there may be a case for monthly auctions due to the

cash-flow benefits for participants ... and the likelihood of little drop-off in participation'. (Submission 715, Frontier Economics report, p. 3)

More frequent auctions will mean smaller auctions. The frequency of auctions and its impact on the size of the auction will have implications for:

- the reliability of price information revealed at each auction
- the timeliness of the price information
- the absorptive capacity of the market (that is, its ability to accommodate large transactions)
- the administrative cost to business and government
- liable entities' management of their cash flow and working capital.

#### **Reliability of price information**

More frequent auctions might reduce the reliability of the price information used to inform investment decisions early in the Scheme.

The auction will play an important role in disseminating price information to liable entities and market participants while the secondary market for permits is immature. The price signal should be as reliable and efficient as possible.

The price should reflect market expectations about the demand and supply of permits, and the bidding field should be competitive and representative of the broader market. Smaller and more frequent auctions could lead to a less competitive bidding field and compromise the accuracy of price information from the auction. To avoid this risk, the Government will need to ensure that auctions do not fall below the minimum size needed for competitive bidding.

#### Timeliness of the price signal

More frequent auctions could improve the timeliness of price signals, which would benefit businesses making investment decisions. For example, while the secondary market is immature, firms could review the price of auctioned permits when making decisions about abatement.

However, once the secondary market has matured, investors will have readily observable real-time market prices as they do in other markets.

#### Absorptive capacity of the market

The frequency and size of auctions may have implications for the absorptive capacity of the market (that is, its ability to accommodate large transactions). Smaller quantities of permits are likely to be more readily absorbed by the market, and more frequent auctions might enable it to absorb a larger number of permits.

# Administrative costs

More frequent auctions involve a higher administrative cost for the regulator, and potentially for bidders. However, the capacity to hold auctions on the internet means that costs are unlikely to be an important factor in determining auction frequency.

#### Development of the secondary market

Some stakeholders were concerned that greater auction frequency might delay the development of the secondary market:

...holding auctions too frequently could potentially hinder the pace of secondary market development (Origin Energy submission 815, p. 64).

Quarterly auctions would be sufficient to underpin a robust and regular process of price discovery and avoid the administrative overhead of more frequent auctions (the Australian Securities Exchange submission 811, p. 4).

# Cash flow and working capital management

A number of stakeholders cited cash flow and working capital management as reasons for holding more frequent auctions. The Government understands that these issues are of particular concern following recent global financial events and the resulting uncertainties for businesses in Australia and overseas.

Concerns about working capital relate to the timing difference between the purchase of permits and their surrender to meet Scheme obligations. Many stakeholders were concerned that they would be required to borrow to purchase permits many months or even years in advance. Some were concerned that recent financial market uncertainty would mean that they would not be in a position to borrow the required funds or would be forced to pay interest rates that they could not afford.

Most of these stakeholders suggested monthly auctions, on the grounds that this would enable them to better manage their liabilities and reduce their working capital or debt financing costs. For example, TRUenergy argued that:

A monthly auction with weekly settlements aligned with the [National Electricity Market] settlement timetable will minimise the working capital and cash flow impact on affected energy market participants. (Submission 813, p. 14)

Some stakeholders, such as Caltex, supported weekly auctions because such auctions would reduce working capital requirements:

While this (weekly auctions) would incur some additional administrative costs, such costs would be greatly outweighed by the reduction in working capital requirements that would be incurred with less frequent auctions. (Submission 734, p. 11)

Frequent auctions may provide liable entities with an additional option for managing their obligations under the Scheme, particularly given any working capital or debt financing constraints they may have. For example, they might want to align their expenditure on permits

with their accruing liability over the compliance period. This is similar to the way businesses have developed strategies for managing their accruing tax liabilities.

In the presence of a functioning secondary market, the frequency of auctions should not affect liability management or the costs of working capital or debt financing. Permit prices, like prices of other financial assets, are expected to, on average, yield a return equal to a market interest rate sufficient to compensate investors for the risk of holding permits. Because permits do not pay dividends or interest, like shares or bonds, the return will come in the form of capital gains. That is, on average, permit values (prices) would be expected to rise at the market interest rate.

The permit interest rate and permit prices will also reflect economic conditions and the cost of capital. Lower economic growth or constraints on credit will reduce demand and cause the carbon price to be lower and permits to be more affordable for business. Because of this, the timing and frequency of permit purchases at auction will have a more limited effect on the current dollar cost of permits to businesses with similar costs of capital. Box 9.5 provides a stylised example of how this might operate in practice.

# Box 9.5: Financial implications of the timing of permit purchases

Consider the case of a business seeking to determine the optimal time to purchase pollution permits before surrender date. The business knows that it is liable for a certain quantity of emissions and, consequently, the number of permits it needs to buy. Assume that the permit market interest rate is 5 per cent and that the business has a cost of capital of 5 per cent.

In a well-functioning and liquid secondary market, the business has two broad options:

- Borrow money to purchase a permit for \$20 at the start of the year and hold for 12 months—total cost of \$21 (\$20 plus \$1 in interest).
- Purchase the permit at the end of the year, by which time the permit price has risen, on average, from \$20 to \$21 (\$20 plus a \$1 capital gain equivalent to the market interest rate).

In each case, the cost to the business will be \$21 at the end of the year (\$20 in current dollars at the start of the year). This general cost equivalence principle applies regardless of purchase frequency, for example, whether the business purchases half its permit requirements at two auctions each year or 1/52 of its permit requirements at 52 auctions each year.

In practice, results may vary slightly depending on each liable entity's cost of finance relative to the market interest rate attached to permits and the prevailing economic conditions. For example, liquidity constraints in credit markets may result in higher effective costs of capital to business. However, such constraints are also likely to increase the market interest rate on permits (as their prices fall in the near term).

Financial intermediaries can also provide a purchasing service on behalf of businesses that wish to spread their cash outflows over the course of the year. Where entities have a higher capital requirement, a financial intermediary could attend a quarterly auction and then on-sell proportionate parcels at monthly or weekly intervals to replicate the equivalent

auction frequency.

An effective secondary market will also allow liable entities to purchase permits throughout the year. Auction sales and the ongoing trade of permits in the secondary market will be comparable with the issuance and subsequent trade in shares on the stock market. Even though there are relatively few initial primary market share offerings, shares are traded on all business days, and the secondary market is the share market's primary source of price information.

The Garnaut Final Report noted:

The frequency and timing of auctions will have implications for business cash flows and corporate balance sheets. Some entities with an obligation, such as fuel companies, will be required to purchase permits for all emissions from their fuel. Fears about this financial risk have led some fuel companies to suggest that auctions should be as frequent as weekly. The Review expects new financial services to emerge quickly around the Scheme, so that the market will be able to operate effectively across a range of frequency of auctions. (p. 332)

Consistent with this assessment, a relatively liquid secondary market in permits developed quite quickly in the European Union Emissions Trading Scheme. Some very small trades of derivative instruments for permits have even occurred in Australia. Those instruments incorporated forward prices of around \$19 for 2012.<sup>16</sup> Therefore, with appropriate auction frequency, a market can be expected to develop quite quickly in Australia, giving businesses the necessary opportunity to secure regular and even daily purchase options all year around.

#### Assessment

The Scheme design should include frequent permit auctions while maintaining the size and efficiency of each auction. More frequent, smaller auctions are more easily absorbed by the market, present a lower risk in the event of an auction operational failure, and perhaps provide business with more flexibility while the secondary market is maturing.

However, more frequent, smaller auctions have a number of disadvantages:

- on average, they will have lower participation. If the number of permits sold at any individual auction is too low, only a few bidders might participate. The auction would then be more prone to manipulation and erratic pricing outcomes
- more frequent auctions could reduce the time businesses devote to information gathering and preparation, reducing the accuracy of some bids and the auction price signal
- they will result in higher transaction costs for the regulator and business, although online auctions can be run at relatively low cost and the incremental costs of additional auctions are likely to be small
- they may also reduce the level of activity in the secondary market, especially if auctions are double-sided (that is, allow liable entities to both buy and sell permits).

While quarterly auctions could be sufficient, 12 auctions throughout the financial year will accommodate stakeholder demand for greater frequency while not unduly risking the efficiency of the auction process. Section 9.5.8 discusses the resulting auction schedule and calculation of likely auction sizes.

# Policy position 9.3

Auctions will be held 12 times throughout the financial year.

# 9.5.2 Option of deferred payment

A number of stakeholders, most notably those from the power generation sector, expressed concerns over their capacity as individual businesses to manage the cash-flow costs associated with their significant permit purchase obligations. They argued that auction participants should be able to defer payment for permits until the relevant vintage year (for example, pay for 2013 permits in 2013 even if the permits are purchased at a 2010 auction). This matter was not canvassed in the Green Paper.

For example, Loy Yang Power argued that a potential alternative option would be 'for the cash settlement of permits purchased at auction not to occur until the end of the vintage year' (Submission 661, p. 9), given that some organisations will find it difficult to establish cash or credit lines to allow forward hedging.

Similarly, TRUenergy argued that 'Deferred settlement terms for permits with future vintages purchased at auction will also reduce participant cash management issues and credit support requirements' (Submission 813, p. 14).

Deferred payment is likely to encourage participation in the auction of future vintages reducing the risk of low demand or unreliable prices for future vintages.<sup>17</sup>

The obligations of some electricity generators in the early years of the Scheme will be mitigated to some extent if they receive transitional support in the form of free permits. Nevertheless, some generators will still have to manage significant permit purchase obligations.

There are three broad options for deferred payments for permits:

• Defer payment and receipt of permits

Under this option the bidder does not pay for, or receive, their permit until the vintage year. To protect the Government from the associated credit risk, bidders would be required to provide a deposit, which they would need to top up if the market price fell below the agreed forward price. This system of deposit and margin call is similar to the futures contract arrangements at the Australian Securities Exchange.

This option places the Government in the role of financial service provider, which is likely to be administratively complex. Because the Government would be providing risk management services, this could also disrupt the development of a more efficient private sector futures market which will be needed to allow longer term risk management by business. • Defer payment, but with immediate receipt of permit

Under this option, the bidder receives permits immediately but does not pay until the vintage year. This option places the Government in the role of financial intermediary, which is likely to be administratively complex and expose it to the risk of default (credit risk) to a greater extent than in the first option. The private sector, rather than the Government, is best placed to assess and manage this default risk. If the Government did not provide this service, firms would be likely to contract with financial intermediaries either to borrow money to buy permits or to have permits delivered at a fixed price at a later date.

• Normal settlement arrangements (no lengthy deferral payment options)

Under this option most bidders would pay for and receive permits at the time of the auction. However, bidders could defer payment (and receipt) for up to a maximum of 30 to 60 days. A financing charge equal to a prescribed interest rate would be charged. This option would expose the Government to the very small financial risks associated with short-term payment deferral and would not disrupt the development of either the secondary or derivatives markets.

When an efficient secondary market develops alongside the Scheme, liable entities will have a range of options to help them manage the price and volume risks of permit purchases and trade throughout the year. However, in the early phase of the Scheme as the secondary market develops increasing depth and liquidity, some may still choose to anticipate their permit liabilities and secure permits ahead of some revenue flows.

Liable entities will have an obligation to surrender permits for their emissions in the December following the emissions year, which finishes in June. With that flexibility, they will have ample opportunity to manage their permit purchases in line with their revenue flows.

Other scheme proposals and international experience provide limited guidance on optimal auction payment arrangements for a carbon market. The Task Group on Emissions Trading, the National Emissions Trading Taskforce and the New Zealand Emissions Trading Scheme did not make any specific recommendations about payment arrangements. In the European Union Emissions Trading Scheme, because of large-scale free allocations of permits, liable entities were not required to buy large parcels at auction, rendering payment terms irrelevant. Under the Regional Greenhouse Gas Initiative, financial settlement and transfer of permits to successful bidders occurred within 14 days of the first auction, although very loose caps under that scheme have meant very low prices (\$3 per tonne of carbon dioxide equivalent).

The Garnaut Final Report recommended against lengthy deferred payment, proposing instead that bidders apply for the right to purchase some permits closer to surrender date at the prevailing market price at that time:

On request, the independent regulator could issue emitters with a number of deferred payment permits (taken from the future release trajectory). For example some anticipated permit requirements over the next five years could be set aside for direct purchase at the time of surrender. These would be issued up to a maximum proportion (say, one-third) of expected annual requirements—enough amply to cover permits for which corresponding sales revenue had not been received at the time of surrender. These permits would allow payment for them to

be made at the time of surrender. The payment price would be the market price on the day of surrender or the average price over a preceding period. The effectiveness and need for these special measures should be evaluated at regular intervals. They should be disbanded once they are no longer necessary. (pp. 332-333)

However, the benefit of this approach is unclear because, by definition, bidders can already purchase permits at the prevailing market price at surrender date. It was also unclear how successful applicants would be selected.

# Assessment

It will be important that, if allowed, deferred payment does not reduce the credibility of the auction; in other words, all bids made during the auction must represent both final valuation and capacity to purchase. This would require the creation of a contract through the act of bidding, and the imposition of substantive penalties for buyers who default. Further mitigation strategies could include not transferring ownership until the permit is paid for, and implementing extensive credit checks.

For these reasons, and to minimise fiscal risks to Government, options that involve the delivery of permits before full payment has been made and options that do not involve deposit arrangements will not be considered. Further, to minimise any disruption to the development of the secondary market which will be needed to allow longer term risk management by business any options considered would be of a transitional and strictly limited nature.

#### Policy position 9.4

The Government will consult with industry on possible deferred payment arrangements for auctions of future vintage permits of a strictly limited and transitional nature. Options that involve the delivery of permits before final payment has been received, or that do not incorporate the payment of a deposit, will not be considered.

# 9.5.3 Auction timing

The Government has had to decide on the within-year timing of auctions, and on the date of the first auction.

#### Within-year auctions

While market participants will need to know the total number of permits available for each compliance period and at each auction, giving participants opportunities to purchase permits before, during and after the compliance period is likely to be helpful. Holding an auction before the surrender date will allow them to reconcile their permit requirements once emissions data are finalised for the year. As discussed in Chapter 8, the Scheme will also allow limited borrowing of the subsequent year vintage, which will help to smooth market operation.

### **Green Paper position**

At least one auction of the relevant year's vintage would be held after the end of the financial year in the lead-up to the relevant surrender date. A suggested date would be within one month prior to the surrender date.

Auction timing is less important in carbon markets than in some other markets, as the value of permits does not diminish with time as long as liable entities acquire them by the surrender date. This contrasts with the electricity and perishable goods markets, in which timing is critical and auctions must be held regularly. However, auction timing may have a role to play in reducing the risk of entities 'cornering' the market.

Holding one auction after the end of the financial year, within one month prior to the final surrender date will allow liable entities to reconcile their permit requirements after emissions data are finalised each year. It will also reduce the potential for market manipulation or 'cornering' of the market by providing a reliable government source of permits at surrender date. Together with unlimited banking of permits and oversight by the Australian Securities and Investments Commission, a very strong set of defences against perverse market outcomes is available.

# **Policy position 9.5**

At least one auction of the year's vintage will be held after the end of the financial year in the lead-up to the final surrender date. This will be within one month prior to the final surrender date.

#### The first auction

The first auction could be held, in theory, at any time before the start of the Scheme or after the Scheme has commenced.

#### **Green Paper position**

The first auction would take place as early as is feasible in 2010, prior to the start of the scheme.

Some permits could be auctioned in advance of the start of the Scheme to provide early carbon price signals to businesses, enabling them to make more informed investment decisions. An early auction would also help to prompt the development of an active secondary market.

However, some practical considerations limit how early the first auction could occur.

The legislation establishing the Scheme must have commenced before the first auction takes place. The current timeline suggests that this will not be until the second half of 2009. The national registry will also need to be completed before the first auction of permits, to enable permits to be held in accounts in the registry (see Chapter 7).

For the auction to generate reliable price signals, the first auction should occur after participants have been able to develop informed opinions about overall demand and supply conditions. In practice, this means that they would need to know the Scheme cap (the supply of permits). As discussed in Chapter 10, final announcements about the cap will not be made until early 2010, although those announcements will simply give effect to the medium-term emissions trajectories announced in this White Paper.

Many liable entities will be required to monitor and report their emissions for the year ended 30 June 2009 under the *National Greenhouse and Energy Reporting Act 2007*. Once it is made public, that information will be useful for liable entities and financial market analysts in assessing value in the market. The first greenhouse and energy reports must be lodged in October 2009. This implies that the first auction could be held in early 2010. This will give the carbon market three to six months of trading time before the first compliance period begins.

Stakeholders that commented generally supported the Government's proposal to hold the first auction in early 2010, prior to the commencement of the Scheme. A few recommended an earlier start:

Auctions should commence earlier than 2010. The current lack of liquidity in the electricity sector will not be eased until permits are auctioned. (Loy Yang Power, Submission 661, p. 22)

Origin supports an auction as early as practicable before the scheme commences. Ideally, the first auction should take place in the second half of 2009. (Origin Energy, Submission 815, p. 66)

The practical considerations discussed above mean that an earlier auction is unlikely to be feasible. The Government's decision is consistent with its preferred position in the Green Paper, although the Government will work to ensure that the first auction takes place as early as possible.

# **Policy position 9.6**

The first auction will take place as early as is feasible in 2010, before the start of the Scheme.

# 9.5.4 Advance auctions of future financial year vintages

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 Scheme cap.

#### Advance auctions

Permits may be auctioned in advance of their vintage financial year.

# **Green Paper position**

The Government would support auctions of future year vintages.

Most stakeholders supported the auction of future year vintages. Supporters included the Australian Securities Exchange:

The auctioning of future-year dated permits to underpin re-purchase agreements and the short selling of derivatives will benefit the efficiency of forward price discovery and risk transfer. (Submission 811, p. 4)

Future vintages may be an alternative to the spot market and any associated derivative markets for liable entities seeking to manage future emissions obligations. For example, an entity could:

- wait until its future obligation arises and purchase permits at that time
- buy current vintage permits to use later
- buy the future vintage now in anticipation of the future obligation
- buy a derivative that will deliver the necessary permits to meet the expected future obligation.

In such circumstances, auctions of future vintages would provide liable entities with some additional flexibility.

Some stakeholders suggested that advance auctions will assist the development of price signals for future-dated permits and therefore assist in the creation of derivatives. However, in a market with banking and limited borrowing (see Chapter 8), the markets for current and future permits will be directly linked. In that case, the current spot price is expected to capture the market's assessment of the costs of meeting the broad carbon constraint over time.

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–Wilcoxen hybrid model<sup>18</sup> for climate change policy, which uses long-term permits partly to give investors a stake in the longevity and credibility of the Scheme. It could also be argued that the auction of more distant future vintages would create an obstacle to the eventual closure of the Scheme, as the Government might face a large compensation liability.

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 hoarding the current year's permits.

# Policy position 9.7

The Government will advance auction future vintages.

#### Number of future vintages to be auctioned

A further consideration relates to the number of future vintages that can be auctioned.

#### **Green Paper position**

Four years of vintages would be auctioned (current vintage plus advance auction of three future vintages).

Some international and other Australian scheme proposals are discussed in Box 9.6.

#### Box 9.6: International and other Australian scheme proposals

The expert auction report by Evans and Peck, commissioned by the National Emissions Trading Taskforce, recommended quarterly auctions of current year vintages and auctions of three future year vintages once a year (to be conducted simultaneously with one of the current year auctions).<sup>19</sup>

The taskforce proposed auctions of current year and future year vintages.<sup>20</sup> However, it noted 'scope for further work to refine timing and frequency as detailed scheme design progresses' and that, in particular, 'consideration should be given to the different incentives faced by bidders in relation to timing'. The Garnaut Final Report<sup>21</sup> proposed one to two years (spot plus one future vintage), and the Regional Greenhouse Gas Initiative<sup>22</sup> four years (spot plus three future vintages).

The European Union Emissions Trading Scheme<sup>23</sup> and the New Zealand Emissions Trading Scheme<sup>24</sup> do not include advance auctions of future vintages.

Advance auctions of future vintages give businesses options for hedging future obligations rather than hoarding early vintages, although the utility of such auctions is likely to diminish rapidly for far-dated vintages, particularly when stakeholders have the option of banking permits. A greater number of future vintages will increase the number of auctions per vintage, thereby reducing the average auction size and efficiency. In addition, because simultaneous auctions are desirable to promote efficient price discovery, the complexity of auctions also increases with the number of vintages auctioned at the one time.

A number of stakeholders favoured the advance auction of additional vintages beyond the four proposed in the Green Paper, generally for long-term risk-management purposes. Among these, most requested auctions of a total of five vintages. For example, BP Australia stated that it was:

supportive of the Green Paper's position to auction four vintage years (current + three year future), however, BP would prefer to extend this out to five years

(current + four year future), in line with emission cap timing. (Submission 355, p. 10)

Other stakeholders in favour of additional years of vintages included the Bureau of Steel Manufacturers of Australia, which recommended:

an increase in the number of future vintages to be auctioned (minimum 10 years). This would extend visibility of permit prices further into the future, thereby better informing investment decisions about long-lived assets and enabling hedging. (Submission 408, p. 37)

The Government supports the auctioning of future year vintages because of the benefits for businesses, as discussed above, and because auctioning also reduces the incentive for businesses to hoard permits of early vintages, promoting liquidity in the system.

The Government considers that auctioning four vintages (current vintage plus advance auctions of three future vintages) should be sufficient to promote efficient forward price discovery, help entities to manage future price risks, and promote the development of an active secondary market in future vintages. Over time, as the secondary market matures and is opened more broadly to international trade, the need for auctioning future vintages is likely to lessen.

# **Policy position 9.8**

Four years of vintages will be advance auctioned (current vintage plus advance auctions of three future vintages).

#### Frequency of advance auctions

A further consideration relates to the consideration of advance auctions.

#### **Green Paper position**

The advance auction of future year vintages would occur once each year.

# Box 9.7: Frequency of advance auctions in international and other scheme proposals

Under the Regional Greenhouse Gas Initiative<sup>25</sup>, auctions are held quarterly and future allowances are made available up to four years in advance of their vintage. Under the initiative, it has been recommended that an auction of current vintage year allowances and an auction of a future vintage be held on each of the quarterly auction days. First-quarter auctions would include an auction of allowances from the one-year-ahead vintage, second-quarter auctions would include an auction for the two-year-ahead vintage, and so on.<sup>26</sup>

Evans and Peck also recommended quarterly auctions in their report to the National Emissions Trading Taskforce. However, they recommended that the auction of future vintages be held only in the second quarter of each compliance year.

A higher frequency of advance auctions would decrease the number of permits of a particular vintage at each auction, thus reducing auction efficiency. One auction of future vintages per year will be sufficient to gain the benefits from advance auctions while maintaining the efficiency and simplicity of the Scheme.

Few stakeholders commented on this issue. Those who did comment generally argued that advance auctions for future vintages should be held more frequently than once a year to aid the development of the secondary market and smooth price discovery. For example, Westpac stated that it:

would also support the advance auction of future year vintages several times a year, rather than once a year as proposed in the Green paper. The rolling availability of future vintages would help develop secondary markets, such as the 'repo' market, and promote smooth carbon price discovery. (Submission 695, p. 8)

The frequency of advance auctions for future vintages is likely to be less important than it is for the current vintage. Subject to any borrowing allowance, future-dated permits cannot be surrendered until the year of their vintage. This lead time provides flexibility, which renders the short-run liquidity (the capacity to by at short notice) of the market less critical. Many businesses are likely to plan for their future vintage permit needs at one stage during the year, and annual auctions of future vintages would align with this.

As additional advance auctions would not provide clear benefits, and to maintain the efficiency and simplicity of the auction, an advance auction of future vintages will occur just once each year. Section 9.5.8 outlines a potential auction schedule consistent with this approach.

# **Policy position 9.9**

Advance auctions for each future vintage will be held annually.

# 9.5.5 Auction participation

The Green Paper's proposal that the lodgement of a security deposit would be the only limit on auction participation attracted a range of comments from stakeholders. Universal participation would allow non-liable entities, including financial intermediaries, to participate in auctions.

# **Green Paper position**

Subject to the lodgement of any required security deposit, universal participation would be permitted at auctions.

Some stakeholders opposed this proposal, raising concerns that the participation of non-liable entities in auctions may result in speculation and the bidding up of prices. For example, Woodside Energy Limited argued that, to ensure market liquidity and eliminate price risk, the Government should:

limit participation, at least initially, in government permit auctions and restrict eligibility to register ownership of permits to firms which are emitters or which have permit surrender obligations under the scheme. (Submission 485, p. 27)

Similarly, the Australian Food and Grocery Council argued that:

Allowing financial markets to participate in the auctioning process invites the possibility of manipulation over the carbon trading system, leaving genuine purchasers of permits at a disadvantage. While there is a potential need for financial services in an established carbon market the Government should ensure that an appropriate level of control is maintained to prevent distortion. (Submission 831, p. 14)

However, limiting auction participation would have a number of disadvantages:

- As noted in Section 9.5.1, an auction is more likely to deliver reliable price signals if the field of bidders is competitive. Restricting the number of bidders would reduce the competitiveness of the bidding field and increase the scope for market manipulation.
- Smaller liable entities might prefer to use specialist financial intermediaries to help them manage their emissions obligations over the year, rather than directly participating in auctions. Not allowing intermediaries to participate at auction reduces their ability to provide such services. It would also give liable entities an unfair advantage in the secondary market over others who seek to provide such services.
- In practical terms, it would be difficult to limit participation and enforce a restricted auction Scheme, as excluded entities could simply contract with liable entities to buy permits on their behalf.
- For liable entities to be able to manage their carbon cost price risks, they are likely to want to enter into hedging contracts. Not allowing other players, including financial market participants, to buy permits at auction is likely to slow the development of such hedging products, which would have the perverse outcome of making price risk less manageable.

However, to ensure that auctions are competitive and free of manipulation, steps will be taken to ensure that bidders are credible. Those measures may include some form of financial guarantee or cash deposit to ensure that bidders will be able to pay for the permits they buy at auction, and to encourage only genuine participants. Depending on the number of permits a bidder acquires and the price at which they are acquired, either the deposit would be returned or the bidder's payment would be reduced. This is a standard feature of many auctions. The Government also plans to limit the maximum parcel of permits that can be purchased at any one auction to 25 per cent of the available amount (see Section 9.5.7). Finally, all bidders will be required to have a registry account with the regulator (see Chapter 7).

# Policy position 9.10

Subject to the lodgement of any required deposit and having a registry account, universal participation will be permitted at auctions.

# 9.5.6 Auction type

Several potential auction types are applicable to the sale of carbon permits. The main decisions are:

- whether the auction is a 'sealed bid' auction, or an 'ascending clock' auction
- whether auctions will be held sequentially or simultaneously.

The choice of auction design depends on how many permit vintages are being sold at once, and whether those vintages are close substitutes.

# **Green Paper position**

Ascending clock auctions would be used for single vintage auctions.

# Ascending clock

In an ascending clock auction, the auctioneer announces the current price. Bidders indicate the number of permits they are prepared to purchase at that price. If demand exceeds supply, the auctioneer raises the price in the next round and bidders resubmit their bids. This process continues until the number offered is equal to or greater than demand. Bidders then pay the price from the previous round.

Ascending clock auctions can also allow proxy bidding, in which bidders submit in advance their demand schedule for permits at various prices. These bidders would not need to participate further in the auction (see Section 9.5.7 for this and other operational features). This enables bidders to submit bids, as would be done under a sealed bid system, if this is more convenient (see below).

The ascending clock auction also provides information on the aggregate demand schedule (see section 9.5.7) at the end of the auction, which promotes efficient price discovery in the secondary market.<sup>27</sup>

Box 9.8 outlines the operation of an ascending clock auction.<sup>28</sup>



# Sealed bid

In a sealed bid auction, the auctioneer announces the number of permits to be sold. Bidders then submit sealed bids, which only the auctioneer sees. The auctioneer then allots the permits to the highest bidders. The auctioneer can choose to charge the price offered by the lowest successful bidder (uniform price) or have bidders pay the prices bid (pay-as-bid).

A few stakeholders commented on sealed bid auctions. Most were liable entities that preferred the sealed bid process because of their familiarity with that auction type.

For example, Origin Energy stated:

Origin's preference is for a simple sealed bid, uniform price auction. Compared with an ascending clock auction we believe this design is likely to be easier to understand and implement, has lower implementation costs and is less prone to strategic manipulation. (Submission 815, p. 69)

BP Australia stated:

BP recommends the use of a sealed bid auction, enabling companies to enter schedules of different volumes and prices in advance. This style of auction would follow a similar format to that of the Settlement Residue Auctions currently undertaken by NEMMCO within the National Electricity Market. (Submission 355, p. 10)

Financial market stakeholders, where they commented, supported the Government proposal for ascending clock auctions. For example, Westpac stated that:

this (ascending clock) is the most efficient and transparent approach for this kind of market. (Submission 695, p. 9)

Frontier Economics, in its report prepared for the National Generators Forum, also supported the ascending clock format:

Having considered the options, we tend to favour the ascending-clock design for its open and transparent process and price discovery characteristics. (Submission 715, p. 19)

Some concerns were raised that ascending clock auctions make collusion easier. However, the ascending clock auction is unlikely to be susceptible to collusion in the context of the Australian Scheme because of the number of liable entities under the Scheme, each of which has only a small proportion of the total Scheme obligation. Such a dispersed set of small bidders would be hard to organise for the purpose of collusion. The presence of financial market participants at auction would further limit the potential for collusion by providing a secondary check on auction prices.<sup>29</sup>

The Government initially favoured ascending clock auctions for a number of reasons, including their transparency of operation, and because they allow small players to 'free ride' on the information sets of larger players. With sealed bids, small players have no access to market information during bidding and could miss out on an allocation because of strategic bidding by larger operators.

However, to accommodate some stakeholders' desire for simplicity, the Government will allow 'proxy bidding', as described above. Proxy bidding will replicate some of the advantages of a sealed bid auction, even where the auction type is simultaneous ascending clock.

Frontier Economics supported this position in its report for the National Generators Forum:

The addition of proxy bidding adds additional flexibility to the ascending-clock format and allows bidders who wish to treat the auction as a sealed-bid format, or those who wish to be absent from the auction, to do so. (Submission 715, p. 32)

# Policy position 9.11

Simultaneous ascending clock auction is the preferred auction type with bidders having the option to submit proxy bids in 'sealed bid format' for convenience.

#### Sequential or simultaneous advance auction

Where multiple vintages are being sold at one auction, they can be sold simultaneously or sequentially. This issue is separate from the question of how many auctions of each future vintage will occur each year, which is dealt with in Section 9.5.4.

#### **Green Paper position**

Simultaneous ascending clock auctions would be used for multiple vintage auctions.

In a sequential auction, each vintage is sold in a separate auction, one after another. Sequential auctions are the simplest auction type to administer and are ideal when the values
of the auctioned goods are unrelated. However, they can lead to inefficient prices when goods are substitutes, as is the case in multiple vintage auctions. Inefficient relative pricing can occur because bidders cannot see the prices of other vintages when bidding and must second guess the price of vintages yet to be auctioned. This can result in demand at the earlier auctions being too high or too low, depending on the views of bidders. In turn, this will increase or decrease demand at future auctions, leading to inefficient price differentials between vintages.

In a simultaneous auction, all vintages are auctioned simultaneously using multiple ascending clocks. The auctioneer announces the price of each vintage in each round, and the number of rounds per vintage depends on the time it takes to complete the auction process (that is, until the supply of permits exceeds demand at the final price).

Simultaneous auctions are more complicated because bidders must monitor all auctions at once, but can result in more efficient relative prices of goods as bidders can watch prices evolve as they make their decisions. Simultaneous auctions are much more likely than sequential auctions to deliver reliable relative prices between vintages. Bidders could pre-specify the value differential at which they will switch vintages to ensure that they obtain the right vintage at given price levels. This superiority of price discovery means that, despite their complexity, simultaneous auctions are preferable when auctioning multiple types of goods (such as different permit vintages). Given modern, internet-based, auction platform technology, the complexity of simultaneous auctions can be managed at relatively low cost.

Sequential auctions are simpler and faster, but they can lead to anomalous pricing outcomes for vintages that are close substitutes. Simultaneous auctions are slower but are less likely to deliver anomalous outcomes.

#### Policy position 9.12

Simultaneous ascending clock auctions will be used for multiple vintage auctions.

#### Single-sided or double-sided auctions

The Government must decide whether to allow auction participants to sell as well as to buy permits. An auction that allows both buying and selling is known as a 'double-sided' auction.

#### **Green Paper position**

Only those entities that receive free permit allocations would be allowed to sell them through double-sided auctions in the early phase of the scheme.

A double-sided auction provides a low-risk, low-cost and transparent mechanism for entities that have received a free allocation of permits to sell them on the carbon market. Reducing risks and transaction costs through a double-sided auction would also encourage those with an excess of free allocations of permits to sell them on the market.<sup>30</sup> This may increase the size of the auction and the liquidity of the secondary market by discouraging hoarding.

Frontier Economics supported double-sided auctions in its study on behalf of the National Generators Forum:

A double-sided auction has the potential to improve auction efficiency and the accuracy of the final permit price due to the ability for a larger number of buyers and sellers to compete. (Submission 715, p. 23)

However, providing a double-sided auction facility for all market participants (rather than only those with free allocations) may disrupt the development of the secondary permit market by crowding out investment in alternative trading systems (for example, stock exchanges and over-the-counter markets). This was noted by the Australian Bankers' Association:

Double-sided auctions would introduce unnecessary complexity and hamper development of the secondary market. (Submission 1036, p. 14)

Therefore, it is reasonable to restrict this facility to entities with free allocations, and to shut it down after a short transition period.

#### Policy position 9.13

Entities receiving free permits will be able to sell these at auctions (double-sided auction design) occurring in calendar years 2010 and 2011.

## 9.5.7 Operational features of the auction

Over time, the secondary market will provide a range of services that better facilitate trading and risk management. However, such services might be limited in the short term, which may effect the efficient operation of the secondary market. Therefore, the Government has a role in providing some transitional auction services to reduce this implementation risk.

The following auction features will facilitate and encourage the participation of liable entities in the early years of the Scheme, as familiarity with and confidence in the new environment develops.

#### **Uniform pricing**

The ultimate price paid per permit will be identical for all successful bidders, regardless of their respective valuations. This is a natural outcome of the ascending clock system, and one that does not discriminate between bidders.

#### Aggregate demand revealed each round

At the end of every auction round, the auctioneer will provide information on the number of permits demanded by participants at the current price. To avoid collusion, individual bids will not be published.

#### Proxy bidding

Proxy bidding allows bidders to delegate actions to the auctioneer by submitting a set of bidding rules. Bidders can submit their permit demand schedules and then receive the amount specified at the final auction price. Proxy bidding in sealed bid format will not interfere with the operation, transparency or efficiency of the ascending clock auction; it simply automates

bidder preferences. It does not remove the round-by-round disclosure of aggregate demand by the auctioneer.

#### Publication of auction results as soon as feasible

The market will be informed of the results of auctions in a timely fashion. As the auction system will be fully automated, results will be released within seven days of each auction.

#### **Reserve price**

The auction will have a reserve price set well below the expected market price. This is in line with arrangements in the United Kingdom under the European Union Emissions Trading Scheme. The reserve price will increase efficiency by limiting the abuse of market power or collusion by entities, and accelerating the auction process. It is an administrative mechanism aimed at improving the speed and efficiency of the auction and is not intended as a price floor in the market. Unsold permits will need to be sold at future auctions.

#### Internet auction platform

Auctions will be conducted using an internet platform. The internet platform will encourage more entrants and greater competition because it is low cost and readily accessible.

#### Parcel size

Bidders will be restricted to parcel sizes of no more than 25 per cent of the total number of permits sold at each auction. As there are to be 16 auctions, (section 9.5.8 refers) this implies bids of no larger than around 1.6 per cent of total permits issued for a given vintage. The advantage of imposing a maximum parcel size is that it reduces the potential for large entities to monopolise the market for permits—which stakeholders raised as an important concern. The trade-off is that this is likely to inhibit the flexibility of the market. However, around 1.6 per cent should be sufficient, given that the largest single entity is estimated to account for around 3.5 per cent of total emissions. This would mean that the largest entity could buy all its requirements at just three auctions.

#### Activity rule

Bidders will not be permitted to increase the quantity of their bids as the auction progresses and prices increase.

#### **User training**

There is a need for education and training for stakeholders before the first auction is held. It is proposed that a process be made available to bidders to participate in mock auctions, to allow bidders to familiarise themselves with the auction process. Mock auctions will be voluntary and will reduce implementation risk when the first auction is held. A program of training around the auction system will also be developed for users.

## 9.5.8 Possible auction schedule

The auction schedule will be based on the following final auction policy positions as detailed in this Chapter:

- Auctions will be held 12 times throughout the financial year.
- At least one auction of the current year's vintage will be held after the end of the financial year in the lead-up to the final surrender date. This will be within one month prior to the final surrender date.
- The first auction will take place as early as is feasible in 2010, before the start of the Scheme.
- Four years of vintages will be advance auctioned (current vintage plus advance auctions of three future vintages). Multiple vintages will be auctioned simultaneously.
- Advance auctions for each future vintage will be held annually, with additional auctions for the first two years to facilitate Scheme start-up.

Box 9.9 contains a possible auction schedule consistent with these final policy positions.

# Box 9.9: Possible timing of auctions and proportion of permits available at each auction in 2009-0 to 2011-12

	Financial years																								
	2009-10						2010-11													2011-12					
Vintage	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2010-11				1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16						1/16	
2011-12					1/16	1/16	1/16												1/16	1/16	1/16	1/16	1/16	1/16	
2012-13						1/16	1/16												1/16						
2013-14		Tr	ansiti	on			1/16												1/16						
2014-15																			1/16						

Note: Entries represent the fractions of permits from each vintage year cap excluding administrative allocations.

- 2 Regional Greenhouse Gas Initiative, htt/rggi.org.
- 3 Prime Ministerial Task Group on Emissions Trading, *Report of the Prime Ministerial Task Group on Emissions Trading*, Commonwealth of Australia, 2007.
- 4 National Emissions Trading Taskforce, *Possible design for a national greenhouse gas emissions trading scheme: Final framework report on scheme design*, 2007.
- 5 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.
- 6 New Zealand Government, *Framework for a New Zealand Emissions Trading Scheme*, 2007. In 2008, the New Zealand Parliament passed emissions trading legislation. Following the change of Government, the operation was suspended, but the current Government remains committed to a modified emissions trading scheme.
- 7 Proposal for a Directive of the European Parliament and of the Council 2008/0013 of 23 January 2008 amending Directive 2003/87/EC.

<sup>1</sup> For an example of an analysis of an international experience see P Cramton, *Comments on the RGGI design*, University of Maryland paper, 2007.

- 8 P Cramton, 'Comments on the RGGI design', University of Maryland, 2007. The scheme commenced in September 2008 with a mandatory 25 per cent of permits to be auctioned, although many participating states have made a commitment to auction close to 100 per cent.
- 9 Tradeslot Pty Ltd, *Report on key design elements of auctions under Australia's Carbon Pollution Reduction Scheme*, Final report, October 2008.
- 10 National Emissions Trading Taskforce, *Possible design for a national greenhouse gas emissions trading scheme: Final framework report on scheme design.*
- 11 Regional Greenhouse Gas Initiative, http://www.rggi.org.
- 12 Prime Ministerial Task Group on Emissions Trading, *Report of the Prime Ministerial Task Group on Emissions Trading*, Commonwealth of Australia, 2007.
- 13 R Garnaut, The Garnaut Climate Change Review: Final report.
- 14 Proposal for a Directive of the European Parliament and of the Council 2008/0013 of 23 January 2008 amending Directive 2003/87/EC.
- 15 New Zealand Government, Framework for a New Zealand Emissions Trading Scheme.
- 16 The Australian Gas Light Company completed a future sale of permits, promising to sell permits equivalent to 10,000 tonnes of carbon dioxide equivalent emissions to Westpac on 1 February 2012, for \$19 per permit.
- 17 Tradeslot Pty Ltd, *Report on key design elements of auctions under Australia's Carbon Pollution Reduction Scheme*, Final report.
- 18 See for instance McKibbin, W. and Wilcoxen, P. (2007) 'Two issues in carbon pricing: timing and competitiveness', Working Papers in International Economics, April, No. 1.07, McKibbin, W. and Wilcoxen, 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.
- 19 Evans & Peck, *Further definition of the auction proposals in the NETT discussion paper*, report to the National Emissions Trading Taskforce, 2007, available at http://www.emissionstrading.net.au.
- 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.
- 22 Regional Greenhouse Gas Initiative, http://www.rggi.org.
- 23 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
- 24 New Zealand Government, Framework for a New Zealand Emissions Trading Scheme.
- 25 Regional Greenhouse Gas Initiative, http://www.rggi.org.
- 26 P Cramton, 'Comments on the RGGI design', University of Maryland, 2007.
- 27 Evans & Peck, Further definition of the auction proposals in the NETT discussion paper.
- 28 P Cramton, 'Comments on the RGGI design'.
- 29 Evans & Peck, Further definition of the auction proposals in the NETT discussion paper.

<sup>30</sup> This would most likely be the emissions-intensive trade-exposed firms in receipt of free allocations to cover both their direct and their indirect emissions costs. Their free indirect emissions allocations would need to be on-sold to provide the necessary funds to meet their higher electricity costs.

# **10** Setting Scheme emissions caps

The limit on emissions—the Scheme cap—is the central element of a cap and trade emissions trading scheme such as the Carbon Pollution Reduction Scheme. This chapter sets out the Government's approach to Scheme cap setting.

The Scheme cap determines the number of carbon pollution permits that will be issued by the Government. Allowable emissions across the sources covered by the Scheme will be able to exceed the cap only if the excess is matched by the surrender of eligible international units, additional domestic permits issued as a result of forestry activities, additional permits issued under the price cap mechanism or, if allowed, Scheme offsets (see Chapter 6).

In a system with little or no international linkage, the interaction between the cap and the demand for permits is the primary determinant of the carbon price: the more stringent the Scheme cap, the higher the price, all other things being equal. However, as discussed in Chapter 11, the Government has decided to allow unlimited imports of eligible international units from Scheme commencement and to review the scope for exporting permits over time. This means, depending on the level of international prices and the longer term scheme linking policy, the domestic Scheme cap may be a less significant determinant of domestic carbon prices. Over time, the domestic carbon price is expected to converge on the international price, which in turn will be determined by global abatement demand and supply conditions.

The Scheme cap-setting arrangements remain important, however, because the Scheme cap will reflect national emissions targets and Australia's international obligations. As the number of eligible international units that may need to be purchased will be determined by the ambition of national targets, targets will be the key to the overall cost to the Australian economy.

This chapter considers the following issues:

- Section 10.1 outlines the medium-term Scheme cap guidance.
- Section 10.2 considers the approach for extending Scheme caps and gateways.
- Section 10.3 discusses the setting and reporting of Scheme caps and gateways.
- Section 10.4 outlines the approaches for future adjustments to the Scheme cap in the light of expansions in Scheme coverage or changes in international circumstances.
- Section 10.5 describes the governance arrangements for setting Scheme caps and gateways.
- Section 10.6 sets out the proposed timeline for announcing Scheme caps and gateways.

## 10.1 Medium-term guidance on Scheme caps

The primary objective of the Scheme is to assist meet Australia's emissions reduction targets in the most flexible cost-effective way and to support an effective global response to climate change. Accordingly, Scheme caps for the first two years of the Scheme will be aimed at meeting Australia's Kyoto committed national targets, that is, for emissions to average 108 per cent of 1990 emissions for the years 2008 to 2012.

As a post-Kyoto internationally agreed outcome is not yet in place, the Government can only provide guidance, not certainty, over future emissions reduction targets. This guidance maintains Australia's international negotiation flexibility but also signals the Government's intention to maintain a downward emissions trajectory. Should the Government commit to stronger targets under a post-2012 international framework than anticipated by the proposed Scheme caps, it will make up any shortfalls by purchasing eligible international units.

Scheme guidance will necessarily include the specification of Scheme caps for some period into the future. Provision of relevant market information and predictable medium-term policy will assist financial market analysts and Scheme participants to identify and understand the overall supply and demand conditions for permits.

In a system with little or no international linkage, the interaction between the cap and the demand for permits is the primary determinant of the carbon price: the more stringent the Scheme cap, the higher the price, all other things being equal. However, as discussed in Chapter 11, the Government has decided to allow unlimited imports of eligible international units from Scheme commencement 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 domestic 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 Scheme 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 Scheme cap will remain a key determinant of domestic prices until such time as the restriction on exports is lifted or the international and domestic price is equalised.

As there is uncertainty over relative international prices and future international linking policy, guidance over Scheme policy including Scheme cap setting will be required to inform business investment. Further, Scheme caps will be set in accordance with the indicative national emissions trajectory (see Chapter 4) which reflects Australia's international obligations. The ambition of the national targets will in turn determine the national effort. Stringent national targets might result in Australian business and the Australian Government having to purchase eligible international units from offshore to meet international obligations. This would provide access to low cost abatement while transferring wealth out of Australia. While this will diminish the effect of Scheme caps on the cost of compliance to individual businesses, the approach to cap setting will remain critical to the overall cost to the Australian economy.

In setting the future path of Scheme caps, there is a need to balance the provision of information to the market (to help promote an economically efficient, or lowest-cost, response) against the policy flexibility needed to adapt national targets to comply with evolving international obligations.

There are three broad options for the duration of Scheme caps:

- a long period of certainty, such as 10 years or more (recommended by the Task Group on Emissions Trading (TGET)<sup>1</sup> and the National Emissions Trading Taskforce (NETT)<sup>2</sup>).
- a medium period of certainty, such as five years (recommended by *The Garnaut Climate Change Review: Final report* (Garnaut Final Report)<sup>3</sup>)
- the minimum number of years required to align with the international commitment period. For example, the Government could provide just two years (2010–11 to 2011–12) to align with the current Kyoto Protocol commitment period. New Zealand<sup>4</sup> and the European Union<sup>5</sup> have aligned Scheme caps with their international obligations in their emissions trading schemes.

These options are detailed in Box 10.1 with reference to Australian and international proposals.

#### Box 10.1: Duration of caps in international and Australian scheme proposals

The first commitment period under the Kyoto Protocol extends for five years (2008–12). If the second commitment period were of the same duration, it would run from 2013 to 2017. The United Nations negotiations for a post-2012 outcome are unlikely to determine the length of the second commitment period before late 2009. The length of that period will depend in part on the shape of the overall post-2012 package.

The European Union Emissions Trading Scheme (EU ETS) originally announced that scheme caps in Phase I would be set for three years, and for five years in Phase II. It is proposed that in Phase III of the scheme, scheme caps will be set for eight years (2013 to 2020).<sup>6</sup>

A survey of EU ETS stakeholders and participants, commissioned by the European Commission as part of its review of the scheme, indicated that uncertainty created by the short initial phase for scheme caps was the biggest obstacle to market liquidity.<sup>7</sup> Most of the companies and industry associations surveyed indicated that they would prefer phases of 10 years or more, with national allocation plans being announced two or three years before units are allocated.

At the start of the New Zealand Emissions Trading Scheme, scheme caps were set only for the years to the end of the Kyoto commitment period (2012). While the results of the current Review are unknown, it was previously proposed that domestic scheme caps after 2012 would coincide with the period set for future international emissions commitments.<sup>8</sup>

In Australia, both the National Emissions Trading Taskforce<sup>9</sup> and the Task Group on Emissions Trading<sup>10</sup> recommended that firm caps be set for a period of 10 years, followed by a 10-year range within which future caps would be established ('gateways').

The Garnaut Final Report<sup>11</sup> recommended that firm caps be set for five years, and that information be provided on possible longer-term trajectories and a long-term target, which would be specified in advance. Different trajectories would apply, depending on Australia's international commitments. The Government would announce when the specified conditions for switching tracks had been met five years in advance of the intended switch.

In the Green Paper, the Government proposed a form of medium-term guidance, which included setting and announcing Scheme caps for a minimum period of five years, followed by gateways (ranges of values that future Scheme caps might take) that extended 10 years beyond the period of set Scheme caps. Stakeholders broadly supported this proposal. However, many commented on the lengths of Scheme caps and gateways.

#### **Green Paper positions**

Scheme caps would be set and announced for a minimum period of five years in advance at any one time.

In the event that Australia's international commitment period extends beyond five years, scheme caps would be extended to the end of the commitment period.

By using gateways, the Government would provide guidance over future scheme caps beyond the period of fixed scheme caps.

## 10.1.1 Duration of Scheme caps

Stakeholders broadly supported the Government's Green Paper proposals:

[Transfield supports] the proposal to set and announce scheme caps for five years in advance, with gateways for a further ten years, as this will provide a sufficient level of clarity looking forward upon which to base investment decisions. (Submission 478, p. 3)

[Engineers Australia] supports the arrangements proposed for using medium term target gateways, rolling 5 year revisions to the emissions trajectory and related methods to set CPRS gateways and trajectories. Effectively providing 15 years of forward advice together with the flexibility afforded by banking and borrowing arrangements allow effective risk management.' (Submission 322, p. 6)

Several stakeholders argued for a longer period of known caps. Ten years of certainty over Scheme caps (or even longer, as advocated by some stakeholders) would provide a greater information set to inform carbon pollution permit prices. This would help to guide investment proposals with longer pay-back periods:

[The Australian Financial Markets Association] supports ten (not five) year firm scheme caps and gateways to ten years beyond the firm caps. Rolling gateways forward every five years accords with our thinking on the level of certainty required by the market. (Submission 550, p. 12)

Some stakeholders also wanted a longer guidance period:

While industry would always prefer a longer scheme cap, a period of 10 or 15 years for example, a scheme cap of 8 years from 2012–20 would be a step in the right direction. (Origin Energy, Submission 815, p. 42)

[Alcoa of Australia] supports a minimum 15 year fixed forward trajectory period [10 year of scheme caps and a 5 year gateway] to provide the certainty that businesses require to invest. Shorter periods would discourage new and sustaining investment and job creation, by undermining investment certainty.' (Submission 740, p. 29)

However, Australia's binding international targets have been agreed only to 2011–12. By extending deep into the future, a 10-year cap period risks significant misalignment

between caps and further obligations that Australia might negotiate and accept, and may also limit Australia's negotiating flexibility.

Origin Energy questioned the importance of international negotiations in setting Scheme caps:

We are not convinced that the decision about the length of the CPRS cap needs to be so constrained by the international negotiations. Whatever international agreement may be struck is likely to leave decisions about domestic policy settings to national governments and to allow national targets to be met 'net' of international trade in allowances. (Submission 815, p. 46)

Although providing certainty to liable entities, fixing Scheme caps independently of Australia's international position for that length of time also exposes the Government to potential risk. As noted in Section 10.4, the Government has decided not to adjust Scheme caps in line with internationally negotiated outcomes; instead, it will make up any shortfalls in national emissions reductions targets by purchasing eligible international units. Therefore, the Government and, indirectly, the taxpayer will bear any shortfall between the Scheme caps and internationally agreed targets.

A limited number of stakeholders advocated much shorter periods of guidance. The Australian Network of Environmental Defender's Offices argued that:

[Since the 1980s] it has been abundantly clear that emissions targets will get stricter over time if Australia is to meet an ambitious but necessary reduction target by 2050. There are therefore no compelling equity arguments that support 5 years' notice for industry. (Submission 517, p. 21)

Some stakeholders also argued for a shorter Scheme cap period or built-in flexibility for the Government to adjust Scheme caps downwards in the face of new information or changes:

[Greenpeace] supports 5-year caps but not longer, unless linked to an agreed international commitment period ... That is, the desire to provide information to the market should not override the need to maintain flexibility to ensure future emissions reductions requirements are able to be met without the government needing to buy back permits or purchase permits on the international market due to constraints in the CPRS. (Submission 692, p. 15)

We support the short time frame (five years) proposed for the announcement of scheme caps, but would prefer the frames were even shorter, to prevent blow-outs in the cost of buying back permits, should that become necessary. We are disappointed that all of the flexibility in the scheme is being awarded to industry. (Hunter Community Environment Centre, Submission 381, p. 4)

[I]t is critical that the legislation for the CPRS include built-in emergency measures to allow the Government to rapidly respond to new information or developments by reducing scheme caps, revoking permits, or other emergency measures. (Parramatta Climate Action Network and others, Submission 744, p. 3)

Minimum certainty over Scheme caps would align with the current Kyoto commitment period, ensuring consistency between the Scheme and Australia's international obligations. This is the approach taken in the New Zealand Emissions Trading Scheme. However, the New Zealand scheme is completely open to international trade and its domestic carbon prices are set internationally, which means that domestic caps provide no new information about likely domestic carbon prices.<sup>12</sup>

Setting caps for a period longer than five years, at a time of significant uncertainty about international obligations, would provide a strong international signal of the Government's willingness to commit domestically to a particular emissions reduction target, but may also limit Australia's flexibility in negotiating its international medium-term target. On balance, setting caps for five years at Scheme commencement—consistent with the recommendations in the Garnaut Final Report<sup>13</sup>—strikes a reasonable balance between the need for investment certainty and the need to maintain flexibility for future international negotiations and commitments. The use of gateways provides more information on the future path of Scheme caps (section 10.1.2 refers).

In the event that Australia's international commitment period extends beyond five years, the Government will have the option to extend Scheme caps to align with the longer period.

#### Policy position 10.1:

The Government will provide Scheme caps to the end of five years and have the option to extend this certainty period to the end of any existing international commitment period, if longer.

#### 10.1.2 Gateways

Scheme caps for a number of years could be followed by gateways (a range within which future Scheme caps would be set) as a guide to the Government's longer term cap-setting intentions. Scheme caps would be extended within the bounds set by the gateways. Investors would have certainty that the path of the Scheme cap would be consistent with the gateway. The gateway itself could also be extended at intervals, ensuring a continuous period of certainty, followed by guidance, over the short and longer term.

The principal advantage of using a gateway is that it allows the Government to give the market more information about future caps, while maintaining a degree of flexibility. Having information about constraints on future cap setting will help markets plan new investments.

A second potential advantage is that a gateway could promote Australia's international climate change objectives by signalling its readiness to commit to stricter domestic caps if other countries make similar commitments. The European Union, for example, has signalled that its Scheme cap will be tighter if other developed countries take on significant commitments.<sup>14</sup>

The only major potential disadvantage of using a gateway is that it might limit the Government's ability to set a cap outside the gateway range. However, that risk should be taken into account and balanced against the benefits of providing greater investor certainty and more accurate international signalling.

The width of the gateway will also be an important determinant of the information provided to investors:

Very wide gateways are needed to maintain flexibility, but this provides limited decision-making information to investors. Narrower gateways provide better information to investors; however, this may create the possibility of unfunded future liabilities for the Commonwealth. (Dr Nicholas Linacre, Submission 526, p. 4)

The gateway will become progressively less useful to the market as it widens to accommodate the full range of future circumstances that might influence cap-setting. The price impacts of cap changes are also likely to be heavily discounted.

The Garnaut Final Report<sup>15</sup>, NETT<sup>16</sup> and TGET<sup>17</sup> all proposed that some form of gateway be used. Similarly, caps for Phase III of the EU ETS are currently expressed as a gateway.<sup>18</sup> In all of these proposals or arrangements, gateways take the form of a government commitment to a range of values for future caps.

In response to the Green Paper, stakeholders broadly supported the use of gateways in the Scheme as proposed. However, some were wary of the constraints gateways could impose on the ability to adapt to changes in the face of developing climate information. For example, the Australian Conservation Foundation argued:

The use of ranges and gateways could limit the Government's ability to take further action in response to new climate science, new technologies and international developments. ACF recommends that the Government does not set a limit on the most action it would be willing to take by 2020. This would allow targets of 40 per cent reductions by 2020 and potentially higher to be considered and adopted. The Government must have a mechanism that allows caps to be tightened—without compensation—if new climate science dictates. (Submission 809, p. 3)

On balance, the Government considers that a gateway in some form is desirable, as it balances the need for guidance against the flexibility to adapt to changing international conditions.

#### Policy position 10.2:

By using gateways, the Government will provide guidance on future Scheme caps beyond the period of fixed Scheme caps.

## 10.1.3 Length of the gateway

In deciding the duration of the period of gateways beyond the period of Scheme caps (the gateway 'length'), the Government considered:

- a short period of gateways, such as five years
- an intermediate period of gateways, such as 10 years (recommended by NETT<sup>19</sup> and TGET<sup>20</sup>)
- a long period of gateways, such as 15 years or more (implied in the Garnaut Final Report<sup>21</sup>).

#### **Green Paper position**

The initial length of the gateway would be 10 years beyond the minimum five years of scheme caps.

Some stakeholders preferred shorter gateway lengths:

The underlying concept of gateways is sound but a 10 year initial start and 5 year gateways may not give sufficient flexibility if more stringent action is required in response to changes in climate change data. (Environment Business Australia, Submission 864, p. 11)

At the same time, there may be little practical benefit in extending gateways more than 10 years beyond the period of cap certainty (a total of 15 years into the future). The further into the future the gateways extend, the less relevant the information provided will become. Gateways of that length might add little practical guidance beyond that already provided by the 2050 national emissions target, and would extend beyond the horizons of most planning decisions.

Moreover, given the uncertainty about when international negotiations will conclude and about their outcomes, it may be premature to set and announce a gateway that extends beyond 2025.

Finally, international linkages are likely to increase over time, bringing domestic carbon prices into line with international prices. This means that the length of domestic Scheme gateways would offer the market little new information about likely domestic prices.

In setting gateways, the Government must balance uncertainties about future international obligations and covered emissions (early in the Scheme) against the market's need to have clear Scheme parameters for as long as possible. Gateways should therefore include a long period of guidance (up to 10 years), taking into account progress in international negotiations. Stakeholders broadly supported the length of the gateways proposed in the Green Paper.

#### Policy decision 10.3:

The Government intends to provide up to 10 years of gateways beyond the minimum five years of certain Scheme caps, taking into account progress in international negotiations.

#### 10.1.4 Form of the gateway

Three possible forms of gateways could be used:

- *Continuous gateways* would provide a range of values for Scheme caps for every individual year beyond the period of certainty. This form was proposed by NETT.<sup>22</sup>
- *Periodic gateways* would provide ranges of values for Scheme caps but only in certain years set at regular intervals. For example, TGET proposed that periodic gateways be set in every fifth year at the five- and 10-year marks beyond the period of certain Scheme caps.<sup>23</sup>

• *Track gateways* take the form of a number of potential tracks of future Scheme caps. The Government would announce the track that it was currently on and specify the circumstances under which it would shift tracks. This approach was proposed in the Garnaut Final Report.<sup>24</sup>



The three approaches are illustrated in Figure 10.1.



#### **Green Paper position**

The Government would provide guidance over future scheme caps beyond the initial certainty period through the use of a gateway in each of the following years, to the end of the gateway period.

Stakeholder submissions did not generally focus on the form of gateways. However, those stakeholders that commented on the issue broadly supported the Government's preference in the Green Paper. For example, the Bureau of Steel Manufacturers of Australia recommended that:

Gateways should be 'continuous'—i.e. upper and lower bounds should be defined for each year within the gateway period. (Submission 408, p. 27)

The range approaches (periodic and continuous gateways) have greater flexibility than the switch approach (track gateway). A potential difficulty with a track gateway is that uncertainty about the future international environment makes it difficult to specify hard tracks and mechanistic switching rules. The international situation is likely to contain ambiguities that will make the track-switching decision difficult and potentially arbitrary, which would create uncertainty about the national emissions trajectory. Furthermore, to the extent that tracks are widely spaced, a switch might cause more disruption to the Scheme than proposals that take more incremental approaches. Therefore, the Government considers that a range approach is more appropriate for the Australian Scheme.

The difference between the two range approaches is small. Short periodic gateways (such as five years) and continuous gateways might provide about the same level of guidance because, in practice, the Government would take the five-year gateway into consideration when setting Scheme caps in the interval between the end of the certainty period and that gateway. Therefore, the caps in the interval years would be unlikely to deviate much from the values

they would have had if gateways were specified for every year. At the same time, continuous gateways provide an additional discipline and can be announced with very little loss of flexibility. On balance, the Government prefers continuous gateways.

#### Policy position 10.4:

The Government will provide guidance on future Scheme caps beyond the initial certainty period through the use of a gateway in each of the following years, to the end of the gateway period.

## **10.2 Extending Scheme caps and gateways**

As discussed, over a period of time depending on international prices and the longer-term Scheme linking policy, the domestic Scheme policy may be a less significant determinant of domestic carbon prices. However, as there is uncertainty over relative international prices and future international linking policy, Scheme caps and gateways will need to be extended from time to time to provide an adequate level of guidance to the market.

## 10.2.1 Extending Scheme caps

To continue to provide guidance to investors, Scheme caps will need to be extended at certain intervals.

There are two broad options for extending Scheme caps. Longer intervals between cap extensions will lead to shorter minimum periods of certainty about caps. The Government will provide a minimum of five years of Scheme caps, or may elect to extend Scheme caps to align with international obligations if they are longer. At the end of the five-year period, the caps could be extended for, say, another five years. However, as each year passed, businesses would face a shorter horizon of cap certainty until the extension was made—this option would provide between zero and five years of certainty about caps at any time.

Conversely, shorter intervals between cap extensions, for example if caps were extended annually by one year, would provide four to five years of certainty about caps at any time.

#### **Green Paper position**

Scheme caps would be extended by one year, each year, as required to maintain a minimum five-year certainty period. Should the international commitment period (and therefore scheme caps) already extend beyond five years, an annual extension would become optional.

Stakeholders broadly supported the method of extending Scheme caps proposed in the Green Paper:

[BP Australia] supports the announcement of 5-year (minimum) rolling caps, with extension to an international commitment period (once negotiated). However, this should be a mandatory, not an optional, extension, as suggested in the Green Paper. (Submission 355, p. 8)

NETT<sup>25</sup> and the Garnaut Final Report<sup>26</sup> proposed that firm caps be extended by one year, every year, while TGET<sup>27</sup> recommended that every five years caps be extended by five years.

A short interval (such as one year) for extending Scheme caps has a number of advantages. It would increase flexibility for the Government, which could make small extensions to the cap each year in response to developments in the economy, in environmental science or in international objectives and commitments. It would help to maintain a 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 to promote a more continuous pricing response, rather than sharp, irregular adjustments.

The disadvantage of extending Scheme 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 Scheme caps were extended less regularly.

On balance, the Government considers that the benefits of maintaining the minimum period of certainty and providing more regular information to the market are likely to outweigh the administrative costs of a shorter interval for extending caps.

#### Policy position 10.5:

Scheme caps will be extended by one year, each year, as required to maintain a minimum five-year certainty period.

## 10.2.2 Extending gateways

To continue to provide guidance to investors, gateways will also need to be extended at certain intervals.

The two broad options for extending gateways are to extend them by one year, every year, or to extend them by five years, every five years (as proposed by NETT<sup>28</sup> and TGET<sup>29</sup>). The Garnaut Final Report<sup>30</sup> did not canvass the extension of gateways—the range of potential trajectories is established before Scheme commencement, and there appears to be no explicit interval for extensions.

As with Scheme cap extension, longer intervals reduce the guidance period. If gateways were extended by one year, every year, that would provide 14–15 years of guidance at any time. However, extending gateways by five years, every five years, would provide 10–15 years guidance at any time.

#### **Green Paper position**

Gateways would be extended by five years, every five years, as part of a strategic review of international conditions and Australia's likely future international commitments.

The Australian Financial Markets Association, while arguing for longer Scheme caps, supported extending gateways by five years, every five years:

Rolling gateways forward every five years accords with our thinking on the level of certainty required by the market. (Submission 550, p. 12)

The Australian Securities Exchange also supported the use of gateways and strategic reviews:

The proposed five-year reviews and gateways provide a balance between providing some certainty for business while retaining a fair level of flexibility to reflect the outcome of on-going international negotiations on climate change. (Submission 811, p. 3)

Some stakeholders preferred longer gateway extension periods. For example, the Australian Environment and Planning Law Group of the Law Council of Australia stated that, assuming a 10-year gateway, a review of gateways every five years would mean that in year five of the Scheme:

gateways will only exist for the 5 years after the most recent trajectory target. This will only provide a 10 year outlook, which may be too short in respect of some investment decisions, i.e. many projects are based on a minimum 15 year life. (Submission 357, p. 25)

The Investor Group on Climate Change argued that gateways should be extended by one year, every year, and supported:

the adoption of a 10 year continuous gateway beyond firm scheme caps and for the gateway to be rolled forward by 1 year every year to maximise the period of investor certainty. (Submission 697, p. 8)

Since gateways play a more strategic role in future policy, a longer extension interval is desirable. A review of gateways, taking into account developments in international negotiations, could take place at each five-year Scheme review (see Chapter 16). This would still provide a minimum of 10 years guidance and possibly up to 15 years of certainty, depending on the point in the review cycle.

Best practice suggests that regulation be reviewed at a strategic level every five years. On balance, the Government has decided that gateways will be extended as part of a five-yearly strategic review. To ensure that the reviews do not adversely affect market certainty, their scope will be defined tightly.

#### Policy position 10.6:

As part of a five-yearly strategic review, existing gateways will be extended by five years every fifth year from 2010–11.

## 10.2.3 Updating and narrowing of gateways

The quality of market guidance will be affected by how the gateways are updated as Scheme caps are extended. If gateways are not adjusted, gateways will effectively widen each year as Scheme cap years are extended towards the final year of the gateway.

To ensure that gateways provide the most useful information to the market, they can be narrowed and updated as part of the five-yearly strategic review. This approach, shown in Figure 10.2, was recommended by NETT.<sup>31</sup>



Figure 10.2: Updating and narrowing of gateways

ABN AMRO Australia was one of the few stakeholders to comment on the narrowing and updating of gateways. It suggested the incorporation of reset mechanisms that progressively narrowed the range into which Scheme caps could be annually extended:

In the absence of a reset mechanism, and assuming that distant Gateway 5yr Points are set relatively wide, over time the range into which Scheme Caps can be extended also gets relatively wide. This exposes the market and market participants to potentially significant step-changes in the setting of extended Scheme Caps. (Submission 828, p. 2)

On balance, the Government considers that a review of gateways, taking into account progress in international negotiations, could take place at each five-yearly Scheme review. The review could also consider the narrowing and updating of existing gateways.

#### Policy position 10.7:

As part of a five-yearly strategic review, existing gateways will be narrowed every fifth year from 2010–11.

## 10.3 Setting and reporting Scheme caps

This section describes how the Government will set Scheme caps and meet Australia's international emissions reporting obligations.

#### 10.3.1 Approach to Scheme cap setting

A primary aim of the Scheme is to help Australia meet its emissions reduction targets in the most flexible and cost effective way. The Government's medium-term (2020) emissions objective is to reduce national emissions from five per cent to 15 per cent below 2000 levels

(see Chapter 4). The Scheme will reflect this national target through the stringency of the Scheme caps.

Australia's emissions reduction targets are specified in terms of *national* emissions. Because the Scheme will not cover all sources of emissions at commencement, so the Scheme cap and Australia's total national emissions will be different. Emissions from covered sources will form only a subset of total national emissions. Therefore, there needs to be a clear relationship between the Scheme cap and the indicative national emissions trajectory.

#### **Green Paper position**

At the end of 2008, in the context of the White Paper, the Government would announce an approach for setting scheme caps for the period 2010–11 to 2014–15, consistent with the indicative national emissions trajectory.

Since the gap between the Scheme cap and the indicative national emissions trajectory relates to uncovered emissions, this raises the question of whether uncovered emissions sources should share in the national emissions reduction effort and, if so, how.

If sources of emissions cannot be covered, the Government will, where practical, apply alternative mitigation measures (Chapter 6 refers). The purpose of such measures will be to ensure that uncovered sources make an equivalent contribution to achieving Australia's national emissions reductions objectives and have incentives to undertake abatement. Alternative mitigation measures could include regulatory requirements that entities meet certain emissions standards, or to adopt low-emissions technologies or management practices. To ensure an equivalent contribution, alternative mitigation measures will be designed to deliver abatement up to a cost that is roughly the same as the carbon price under the Scheme.

The Green Institute stated:

Australia's targets for reducing greenhouse gas emissions should be framed on the basis of full carbon accounting, with the caps for emissions trading set proportionately so that every sector bears its share. (Submission 365, p. 3)

To ensure that the Scheme helps Australia meet its internationally agreed national targets, and to account for the alternative mitigation measures applied to the uncovered sources, the approach to setting Scheme caps will be to subtract from the indicative national emissions trajectory the projected emissions from sources not covered under the Scheme.

It is possible that this calculation could deliver Scheme caps that lie outside the gateway range (at either the top of the gateway or the bottom). In that case, the cap would need to be set at the closest gateway point.

#### Policy position 10.8:

Scheme caps will be set equal to the indicative national emissions trajectory in the relevant year, less the projected emissions from those sources not covered by the Scheme. Where this would lead to Scheme caps that lie outside the bounds of the relevant gateway, the Scheme cap will be set equal to the closest bound (upper or lower) of that gateway.

### 10.3.2 Accounting for Scheme caps

There are two possible options for reconciling Australia's indicative national emissions trajectory and Scheme caps for reporting purposes:

- The Government could account for emissions from covered sources separately from emissions from sources not covered by the Scheme. For reporting purposes, reconciliation would then be a matter of subtracting covered emissions from national emissions.
- The Government could account for emissions from uncovered sources in the same way as it accounts for those from covered sources. Permits equal to the Scheme cap would be allocated by the Government, and covered entities would obtain and surrender permits equal to their emissions. The Government could make a similar notional allocation for uncovered sources of emissions. That is, as a matter of accounting, the Government could notionally allocate and retire permits each year on behalf of the uncovered sources of emissions.

#### **Green Paper position**

The difference between the scheme cap and the national target would be explicitly and transparently reconciled through notional allocation (and retirement) of permits for sources of emissions not covered by the scheme.

The difference between these options is only a matter of form. In each case, all emissions must be estimated and reported as part of Australia's national greenhouse gas inventory reporting, although the emissions from uncovered sources will be more difficult to estimate than will those from covered sources.

After Scheme coverage is determined, the issue is whether covered and uncovered sources of emissions should be accounted for in the same way. Under the notional allocation approach, the additional book entries may increase transparency. A notional allocation ensures that the relationship between covered emissions and the indicative national emissions trajectory is consistent and transparent over time. As the Scheme coverage expands to incorporate further sources of emissions, Scheme caps will expand, ultimately aligning with national targets as Scheme coverage approaches 100 per cent of national emissions. As Scheme coverage increases, the notional allocation would shrink and the real allocation would increase.

Stakeholders broadly supported the Government notionally allocating permits to the uncovered sources of emissions to ensure consistency and transparency between the covered emissions and the indicative national emissions trajectory over time.

On balance, a notional allocation would make Australia's national emissions reporting more transparent.

#### **Policy position 10.9:**

The difference between the Scheme cap and the national emissions target will be explicitly and transparently reconciled through notional allocation (and retirement) of permits for sources of emissions not covered by the Scheme.

## 10.4 Adjustment of Scheme caps

Scheme caps may have to be adjusted to accommodate extended Scheme coverage or, potentially, to take account of international developments.

## **10.4.1** Adjusting the cap for expanded Scheme coverage

When new sources of emissions are added to the Scheme, the Scheme cap will have to be expanded and progressively aligned with the indicative national emissions trajectory.

It will be important to give the market guidance on Scheme cap adjustments to enable it to more accurately assess how the addition of new sources of emissions will affect the price of carbon pollution permits.

#### **Green Paper position**

The Government would announce an approach in early 2010 for expanding the cap to accommodate increases in scheme coverage that provided a smooth scheme price path.

Because of the uncertainties about emissions from uncovered sources, it would not be advisable to specify well in advance the exact number of tonnes of carbon dioxide equivalent that would be added to the Scheme cap. The addition to the cap could inadvertently be made too tight or too loose.

The option of specifying an approach balances the desirability of providing some information against the need to maintain some flexibility to deal with future uncertainty. Furthermore, it allows the Government to specify in advance the stringency of the addition to the cap relative to historical emissions from the newly covered source, without committing in advance to a particular absolute emissions figure.

Stakeholders broadly supported announcing an approach as a means of providing guidance. For example, Chevron Australia stated:

Where uncovered sectors are to be brought into the scheme, Chevron supports the option that Government announce the detailed rules by which the sector will be included and the resulting increase in the scheme cap at least two years in advance of transition. (Submission 716, p. 24)

However, WWF–Australia considered that the Scheme legislation should provide for the later inclusion of uncovered sources, such as agriculture, to provide greater certainty to the market:

WWF submits that hardwiring the incorporation of those [uncovered] sectors into the legislation would do much to overcome uncertainty in the market about the price impacts of incorporating those sectors into the scheme. Consideration could also be given to a transitional 'reserve' price in relation to permits for several years on either side of the incorporation of the agriculture and forestry sectors. (Submission 522, p. 35)

In line with the methodology for setting Scheme caps generally, the Government will set the post-expansion Scheme cap equal to the indicative national emissions trajectory in the relevant year, less the projected emissions from remaining uncovered sources of the economy. For example, if in 2013 it were decided to include agriculture in the Scheme from 2015, the Scheme cap in 2015 would be equal to the indicative national emissions trajectory, less the projected emissions from remaining uncovered sources. At the time the decision was made to expand coverage, all existing caps and gateways would be updated to reflect this. Figure 10.3 illustrates this approach.

#### Policy position 10.10:

In line with the methodology for setting Scheme caps generally, the approach for expanding caps to accommodate increases in Scheme coverage will be that the Scheme cap will be set equal to the indicative national emissions trajectory in the relevant year, less the projected emissions from remaining uncovered sources of emissions, taking into account any alternative mitigation measures applying to those uncovered emissions.



## 10.4.2 Adjustment in the light of international developments

Setting Scheme caps five years in advance is an exercise in risk management. There is considerable uncertainty about international developments after 2012, with little clear direction on the likely outcome of negotiations. If caps are set five years in advance, future

shifts in the international situation may mean that the caps are not aligned with Australia's internationally negotiated national targets. That is, given projected emissions from those sources not covered by the Scheme, the Scheme cap results in emissions reductions within the Scheme that are less than (or greater than) those required to meet internationally negotiated national targets.

A decision will need to be made as to whether the risk of non-alignment is borne by Scheme participants or by taxpayers, that is, whether Scheme caps are tightened or whether the Government makes up any shortfall through purchases of eligible international units on the Commonwealth Budget.

#### **Green Paper position**

The scheme cap would not be adjusted in the event that it is incompatible with internationally negotiated national targets and, if necessary, the Government would make up any shortfall in internationally agreed targets by purchasing international emissions units.

As noted in section 10.1, depending on the international price, domestic prices may be determined by international factors. Under some circumstances this will mean that adjustments to the Scheme cap will no longer be a significant determinant of domestic carbon prices. However, while there is uncertainty over relative international prices, Scheme cap adjustment policy will have an important role to play in maintaining price stability within the Scheme.

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

- The Government could tighten the Scheme cap 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 sells 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. Cancellation of permits is not considered in this section, as it is proposed that the legislation provide that the Government cannot cancel permits without providing compensation (see Chapter 8).
- 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 Scheme cap. This is the approach recommended in the Garnaut Final Report.<sup>32</sup>

Stakeholders broadly supported the second approach to make up the difference between Scheme caps and internationally negotiated targets.

[The Australian Financial Markets Association] supports the Government covering any mismatch between international obligations and pre-set scheme obligations (recognising that this would leave the Government exposed to international price movements) and the same treatment should apply to gateways. (Submission 550, p. 12)

The Australian Chamber of Commerce and Industry also supported this approach:

ACCI supports the Government's approach to a scheme cap when it is incompatible with international negotiations by purchasing international emissions units to make up any shortfall. This is vital to making the scheme cap a credible signalling mechanism for business and the market. (Submission 786, p. 7)

However, the Hunter Community Environment Centre argued against the use of eligible international units to make up the shortfall:

[F]or the scheme to work—to actually reduce carbon pollution commensurate with global requirements and risk aversion—we need the flexibility to screw down emissions [as] low and as quickly as possible ... The 'Clean Development Mechanism' credits under the Kyoto Protocol frequently come from projects that do not reduce greenhouse pollution and also have been associated with human rights problems. Any successes we have in shoring up the integrity of the CPRS will be completely undermined if dodgy international credits are allowed to be traded. (Submission 381, p. 5)

The Australian Network of Environmental Defender's Offices also contended that the Government should not make up the shortfall through the purchase of eligible international units, but that industry should bear the responsibility for achieving emissions reduction targets:

[T]here is no reason why taxpayers should foot the bill where the Government has to buy international permits to fill the shortfall during the 5 year notice period. This is inconsistent with the polluter-pays principle. GHG emitting industries are responsible for the need to regulate in the first place, and they should not be given further concessions and allowed to further delay necessary action to reduce emissions. The primary goal of the scheme must be to ensure that GHG reduction targets are met in the short and long term. (Submission 517, p. 21)

Altering Scheme caps after their announcement would disrupt the market by affecting the 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. Standing ready to purchase eligible international units presents only a small fiscal risk, because Scheme caps will extend for only five years (or to the end of a known international commitment).

Furthermore, because the Government would take domestic commitments and objectives into account when negotiating international commitments, it would be able to manage risks over such a time horizon. For this reason, the Government has decided to purchase eligible international units if necessary.

#### Policy position 10.11:

The Scheme cap will not be adjusted in the event that it is not aligned with internationally negotiated national targets and, if necessary, the Government will make up any shortfall in internationally agreed targets by purchasing eligible international units.

## **10.5** Governance arrangements

Political accountability suggests that elected representatives (the Parliament and the Government) should be given responsibility for major political decisions which require the balancing of broad environmental, economic and social considerations and which have far-reaching implications. Where the decisions are of particular consequence, or where it is desirable to establish a high degree of certainty, it would be preferable to involve the Parliament by setting the decisions out in legislation. In cases where decisions need to be made at frequent intervals or where flexibility is necessary, it would be preferable to assign the role (through delegated legislation) to the Government, acting through the responsible minister.

This section sets out the governance arrangements applicable to the Scheme caps and gateways.

## **10.5.1** Approach to setting and extending Scheme caps and gateways

Decision making for caps and gateways requires appropriate accountability. The governance arrangements also need to take account of the regulatory process for decision making. In the Green Paper, the Government proposed that the Australian Parliament be ultimately accountable for these decisions and that caps and gateways be set out in delegated legislation, rather than be included in legislation (which is particularly cumbersome to amend).

#### **Green Paper position**

The scheme caps and gateways would be set out in delegated legislation.

Some stakeholders raised concerns about Parliament, rather than an external regulatory body, setting Scheme caps annually. For example, although the Climate Institute supported the Government's proposal to announce annual caps for rolling five-year periods and longer term gateways, it had reservations about the method of setting Scheme caps:

[T]he proposal for annual cap extensions to be disallowable instruments raises serious questions of excessive political transaction costs for the Scheme. While it is important to provide policy certainty over at least a five year time horizon, significant uncertainty will also arise if the issue of the cap is open for discussion each and every year. (Submission 702, p. 12)

On the other hand, some stakeholders were concerned about the responsible minister having too much discretion in determining the aspects of the gateway. For example, KPMG argued:

Although in the initial stages of the CPRS some flexibility should be encouraged, the current lack of predictability and the absence of clear criteria and third party review in the gateway setting process, will generate uncertainty amongst participants and investors. While KPMG agree that the ultimate decision on the level of the gateway should rest with the Government, we believe that the Minister's level of discretion is currently too high. (Submission 545, Executive Summary, p. 13)

Similarly, Commerce Queensland did not support the proposal for the Parliament to retain responsibility for setting Scheme caps and gateways:

In our view, this approach is undesirable as it will result in these important decisions being subject to the vagaries of the parliamentary process. There is a real risk that a future Australian Government may need to settle for a sub-optimal compromise position on either caps or gateways in order to secure parliamentary passage of the relevant legislation. (Submission 816, pp. 7–8)

The Scheme caps and gateways, as a function of the national target range and trajectory, will be key drivers of the cost of the Scheme and will have potentially significant implications for the national economy. In the interests of accountability, the elected representatives, rather than an independent regulator, should make decisions about Scheme caps and gateways, taking into account societal costs. This is consistent with the recommendations of the Garnaut Final Report. <sup>33</sup>

If decisions about setting Scheme caps and gateways are of particular consequence, or where a high degree of certainty about Scheme caps and gateways is desired, it would be preferable to involve the parliament by setting the decisions out in legislation. If such decisions need to be made at frequent intervals or if flexibility is necessary, it would be preferable to assign the role to the Government, acting through the responsible minister within the framework set out in legislation.

Including Scheme caps and gateways in the Act establishing the Scheme would signal that the targets were designed to be durable, which would increase market information and, therefore, investor certainty. However, the requirement for ongoing Scheme cap and gateway setting over time would make it impractical to include these in the Act, as the Act would then require frequent amendment. Establishing Scheme caps and gateways in the Act would also limit the Government's ability to adjust the level of caps and gateways in response to changes in international circumstances, technological advances and economic conditions.

Therefore, the first five years of Scheme caps and any Scheme caps that are added after the first five years of Scheme caps will be included in delegated legislation (regulations). This will provide parliamentary scrutiny while meeting the flexibility criterion and practicality requirements. Similarly, the first 10 years of gateways and any gateways that are added will be set in regulations.

Having set the policy framework, the Government will establish a process of periodic independent public reviews, which will be incorporated into the regulatory process to make decisions made under the Scheme more accountable and transparent. Five-yearly strategic reviews will be conducted by a committee commissioned by the responsible minister (see Chapter 16). Gateways will be narrowed and extended every fifth year from 2010–11, as part of the five-yearly strategic reviews, and changes to gateways, in line with gateway setting more generally, will also be made through regulation.

On balance, ensuring that parliament sets Scheme caps and extensions through regulation provides for the greatest measure of public accountability, while meeting flexibility requirements.

#### Policy position 10.12:

Scheme caps and gateways will be set in regulations, taking into account current and anticipated international obligations.

## 10.5.2 Default Scheme cap

Delays in putting in place the regulations extending Scheme caps are possible. Such delays would reduce the certainty period over Scheme caps from five Scheme caps to four, to three, and so on. To ensure that five Scheme caps are always in place in line with the Government's commitment to medium-term policy certainty, a default mechanism will be required. The Government will need to decide on the basis for setting a default cap.

There are three broad options for setting a default cap:

- the default cap could be set such that the reduction is equal to the average reduction in some number of previous years
- it could be set equal to the middle of the relevant gateway
- it could be set equal to some proportion of the previous year's Scheme cap (for example, 99 per cent, 98 per cent, and so on). For example, the Mandatory Renewable Energy Target legislation sets a default equal to 100 per cent of the previous year's Scheme cap.

Setting the legislative default Scheme cap reduction equal to the average of previous years' reductions could result in a measured continuation of emissions reductions under the Scheme if regulations are delayed. However, taking an average may not lead to representative reductions where the Scheme is expanded to include new sources of emissions during the preceding period.

Setting the default equal to the middle of the relevant gateway could be done by formula or by amending the legislation to specify the default number each time the gateways are updated or extended. In theory, setting the default to this level would match the market's expected Scheme cap level and would therefore have the least impact on the permit price. In practice, because the gateways would be updated and extended only every five years, the path of Scheme caps might have diverged from the gateway mid-point, rendering this point less relevant to market expectations.

Setting the default equal to some proportion of the previous Scheme cap could be done by formula. As the market would tend to use the previous Scheme cap as a guide, this approach would probably be the least disruptive to permit prices. Furthermore, such a default would, on average, have more legitimacy because it would relate to the parliament's most recent decision rather than to a gateway that may have been set up to five years earlier.

A reduction in emissions could be built into the default, to give confidence to investors that continued emissions reductions would be required, even if regulations were not in place. A simple default cap that declines at one per cent a year will achieve that outcome.

#### Policy position 10.13:

If regulations for the Scheme cap are not in place at 1 July each year, a default Scheme cap equal to the previous year's Scheme cap multiplied by 0.99 will be added to the end of the set Scheme cap period to maintain five years of Scheme caps at all times. This provision will be in the Scheme legislation.

## **10.6** Timing of Scheme cap and gateway announcements

The Government will announce final Scheme caps and gateways in early 2010 before commencement of the Scheme.

#### Green paper position

In early 2010, the Government would announce the finalised scheme caps for the first five years of the scheme (2010–11 to 2014–15) and 10 years of gateways beyond this period.

A number of stakeholders requested that Scheme caps be set and announced earlier than this. For example, Origin Energy stated:

It is not clear why the scheme cap for the first few years of the scheme, from 2010–12, cannot be announced at the end of 2008. Combined with a medium term target range and clear rules relating to the use of international offsets, scheme participants would then have enough information to be able to estimate prices from 2010–20. (Submission 815, p. 45)

BP Australia also called for the Government to confirm, as soon as possible, the 2010–12 Scheme targets:

This is important to provide near-term certainty and established caps before a future international agreement influences the shape of the forward emissions trajectory. BP also recommends the release of information on medium term caps and trajectories as soon as possible—and preferably ahead of the White Paper—to permit assessment of industry impacts prior to its publication. (Submission 355, p. 8)

A 2008 Scheme cap announcement would provide early guidance for investors. However, it is also critical that the Scheme cap decision is made with the most up-to-date information available, including:

- information about developments in Australia's international commitments after 2012 (beyond the first Kyoto commitment period)
- modelling results that take into account more recent data and assumptions about emissions, complementary policies and economic data

• *National Greenhouse and Energy Reporting Act 2007* data for 2008–09 (available to the Government in November 2009).

Cap-setting decisions made before 2010 would therefore be premature, and the costs of errors could be high, since caps, once set, will not subsequently be adjusted.

#### Policy position 10.14:

In early 2010, before Scheme commencement and after the passage of legislation through parliament, the Government:

- will announce Scheme caps for the first five years, or, to the end of any new international commitment period if the Government elects to do so; and
- intends to announce up to 10 years of Scheme gateways beyond the minimum five years of Scheme caps.

- 2 National Emissions Trading Taskforce, *Possible design for a national greenhouse gas emissions trading scheme: Final framework report on scheme design, 2007.*
- 3 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.
- 4 New Zealand Government, The Framework for a New Zealand Emissions Trading Scheme, 2007.
- 5 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
- 6 Proposal for a Directive of the European Parliament and of the Council 2008/0013 of 23 January 2008 amending Directive 2003/87/EC.
- 7 European Commission, Directorate General for Environment, 'Review of the EU Emissions Trading Scheme—survey highlights', survey conducted by McKinsey & Company and Ecofys, November 2005.
- 8 New Zealand Government, The Framework for a New Zealand Emissions Trading Scheme.
- 9 National Emissions Trading Taskforce, *Possible design for a national greenhouse gas emissions trading scheme: Final framework report on scheme design, 2007.*
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- 11 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.
- 12 New Zealand Government, The Framework for a New Zealand Emissions Trading Scheme, 2007.
- 13 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.
- 14 Proposal for a Decision of the European Parliament and of the Council on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.
- 15 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.

<sup>1</sup> Prime Ministerial Task Group on Emissions Trading, *Report of the Prime Ministerial Task Group on Emissions Trading*, 2007.

- 16 National Emissions Trading Taskforce, *Possible design for a national greenhouse gas emissions trading scheme: Final framework report on scheme design, 2007.*
- 17 Prime Ministerial Task Group on Emissions Trading, *Report of the Prime Ministerial Task Group on Emissions Trading*, 2007.
- 18 Proposal for a Directive of the European Parliament and of the Council 2008/0013 of 23 January 2008 amending Directive 2003/87/EC.
- 19 National Emissions Trading Taskforce, *Possible design for a national greenhouse gas emissions trading scheme: Final framework report on scheme design, 2007.*
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- 23 Prime Ministerial Task Group on Emissions Trading, *Report of the Prime Ministerial Task Group on Emissions Trading*, 2007.
- 24 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.
- 25 National Emissions Trading Taskforce, *Possible design for a national greenhouse gas emissions trading scheme: Final framework report on scheme design, 2007.*
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- 27 Prime Ministerial Task Group on Emissions Trading, *Report of the Prime Ministerial Task Group on Emissions Trading*, 2007.
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- 29 Prime Ministerial Task Group on Emissions Trading, *Report of the Prime Ministerial Task Group on Emissions Trading*, 2007.
- 30 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.
- 31 National Emissions Trading Taskforce, *Possible design for a national greenhouse gas emissions trading scheme: Final framework report on scheme design, 2007.*
- 32 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.
- 33 R Garnaut, The Garnaut Climate Change Review: Final report, Cambridge University Press, 2008.

# **11** Linking the Scheme to international markets

The Government has designed the Carbon Pollution Reduction Scheme so that it can link with other international schemes. Linking involves importing units from other schemes, exporting units from Australia, or both. Linking has implications for the operation of the Australian Scheme and, in particular, for the domestic price of carbon and the overall cost of the Scheme.

An effective global carbon market will play a key role in developing sound international solutions to climate change by fostering least-cost global abatement. Contributing to a robust international carbon market is a strategic priority for Australia.

An international carbon market already exists under the Kyoto Protocol to the United Nations Framework Convention on Climate Change, and some countries have developed, or are developing, domestic emissions trading schemes. The existence of these schemes creates linking options for the Carbon Pollution Reduction Scheme (the Scheme). Opportunities for linking are likely to increase substantially as more countries take on binding emissions constraints and seek to use domestic emissions trading schemes to achieve their emissions targets at least cost.

Linking will have important implications for the operation of the Scheme, in particular for the price of Australian carbon pollution permits and the overall cost of the Scheme. In a closed system with no international linking, the carbon price is determined by domestic demand and supply conditions. With unrestricted linking, the price of an Australian permit will be set by international carbon markets.

Growth in international carbon markets presents opportunities for Australia by broadening the abatement options for liable parties and by extending the market for Australia's abatement. Economic analysis undertaken by the Department of Treasury indicates that linking could reduce the costs of achieving Australia's emission reduction targets.<sup>1</sup>

However, participation in the international carbon market entails some risks. International carbon markets are immature but evolving rapidly. Australia, being a relatively small emitter, is likely to be a price taker; that is, Australia will have little impact on world prices for carbon. A key consideration for Australia is how quickly it wants international demand and supply to determine the domestic price.

This chapter assesses various options for linking the Scheme internationally, and considers which are likely to be consistent with the Scheme's overall objective. As the international carbon market continues to evolve (including in its depth and robustness), judgments about which linking choices best promote the objective are likely to change over time.

- Section 11.1 discusses the Scheme objective and its implications for linking.
- Section 11.2 provides an overview of the different types of links.

- Section 11.3 looks at domestic compliance units and the Kyoto Protocol.
- Section 11.4 discusses the acceptance of international units for compliance in the Scheme.
- Section 11.5 considers the sale and transfer of domestic permits to international markets.
- Section 11.6 outlines future linking arrangements.

# 11.1 The Scheme objective and its implications for linking policy

As discussed in Chapter 5, the objective of the Scheme is to meet Australia's emissions reduction targets in the most flexible and cost-effective way, to support an effective global response to climate change, and to provide for transitional assistance for the most affected households and firms.

An effective global carbon market (with a credible global constraint on emissions) will reduce global and Australian abatement costs by ensuring that the cheapest abatement opportunities are pursued first, regardless of where they occur.

#### **Green Paper position**

The scheme would be designed so that it could link with international markets and schemes, with a preference for open trade within an effective global emissions constraint.

All targets for the scheme, as well as the commitment to reduce national emissions by 60 per cent below 2000 levels by 2050, would be defined in terms of net national emissions; that is, imported units would be counted towards Australia's national target, and exported units would be excluded from the national target.

Any restrictions placed on linking would be to ensure:

- the stability and ongoing credibility of the scheme
- the environmental integrity and effectiveness of the scheme
- the scheme's consistency with international objectives and obligations.

In their responses to the Green Paper, most stakeholders supported linking, noting that it:

- is a cost-effective way of meeting Australia's emission reduction targets
- can encourage the development of global carbon markets
- makes it easier for Australia to become a regional hub for the carbon market, with associated benefits for Australian industry.

For example, in relation to cost-effectiveness:

- BP supported the goal to link because linking 'expands the potential for economic gains from trade and associated cost savings' (Submission 355, p. 9).
- The International Emissions Trading Association (IETA) noted that 'linking allows more [greenhouse gas] abatement to occur with the same level of social resources, or conversely the increased efficiency can reduce the social costs of a given carbon constraint. As we contemplate more ambitious targets for 2020 reduction than those that informed the Kyoto Protocol, it becomes essential to make lowest cost a key concern' (Submission 658, p. 12).
- The Australian Chamber of Commerce and Industry observed that linking 'can reduce domestic abatement costs by opening up more opportunities for abatement ... and may also enhance price discovery through deeper and more liquid markets providing a closer estimate of an international abatement price' (Submission 786, p. 7).

Many stakeholders agreed with Professor Garnaut's view that international linking can facilitate global mitigation and the development of a global carbon market by promoting the use of emissions trading as a mechanism. *The Garnaut Climate Change Review: Final Report* indicate that 'the costs of any specified degree of mitigation can potentially be reduced substantially by international trade in permits. Ultimately, global mitigation will only be successful if countries can trade in emissions permits.'<sup>2</sup>

On the benefit of Australia becoming a regional hub, Westpac agreed that the successful establishment of an Australian carbon market that is linked to international markets would allow 'Australia to play a niche role in carbon trading for the region, consistent with the Government's desire to become a regional financial services hub' (Submission 695, p. 8).

Comparatively few stakeholders argued against linking the Scheme to international markets because they believed that Australia should meet its national emissions targets mainly through domestic action. Nillumbik Shire Council considered that 'the vast majority of emissions reductions should be domestic' (Submission 608, p. 9). ERM Power (Submission 571), and the Nature Conservation Council and the Conservation Council ACT (Submission 555), expressed similar views.

As discussed in the Green Paper, it would be more costly and deliver no additional environmental gain for Australia to achieve its emissions reduction targets solely through domestic abatement. The Treasury modelling illustrates this<sup>3</sup>. A least-cost approach would draw on real abatement opportunities regardless of where they arose in the world. For these reasons, Australia has consistently held that international trade in emissions units would promote a more efficient global response to climate change, as long as any units purchased offshore represented real abatement.

The Government acknowledges the overwhelming support of stakeholders for linking and recognises the benefits of linking in providing low-cost compliance options for liable entities and in supporting an efficient global response to climate change. The Scheme design enables the Scheme to be linked with international markets and schemes, with a preference for open trade within an effective global emissions constraint.

Accordingly, national targets and caps for the Scheme will be interpreted as reductions in net emissions; that is, 'net of trade' abatement counted against the target will comprise reductions
in emissions in Australia and any abatement purchased overseas. Specifically, the Government's national target of reducing Australia's emissions by 60 per cent below 2000 levels by 2050 will be interpreted in net terms—that is, imported units will be counted towards our national target, while exported units will not. Similarly, the 2020 target range should also be interpreted as net targets.

## Policy position 11.1

The Scheme is designed so that it can link with international markets and schemes, with a preference for open trade within an effective global emissions constraint.

Australia's emissions reduction targets are based on net national emissions; that is, imported units will be counted as contributing to meeting the national target, and exported units will not be counted.

Any restrictions placed on linking will be to ensure:

- the stability and ongoing credibility of the Scheme
- the environmental integrity and effectiveness of the Scheme
- the Scheme's consistency with international objectives and obligations.

# 11.2 Types of links

Links can be created with international markets where the Scheme accepts some forms of international units for compliance or allows for the transfer of its own units (carbon pollution permits) outside Australia. In broad terms, links with other schemes can be described as either:

• direct, where units from scheme A can be used for compliance purposes in scheme B (for example, if Australia accepted units from the European Union Emissions Trading Scheme as valid compliance units in the Australian scheme)

or

• indirect, where schemes A and B have no direct links but both accept units from scheme C, creating an indirect pricing link between them (for example, if both the Australian Scheme and the European scheme recognised units created under the Kyoto Protocol).

In addition, links can be either:

• unilateral (one-way), where units from system A can be used in system 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.

More complete forms of direct bilateral linking will include mutual recognition of units and full harmonisation of scheme design.<sup>4</sup> For example, the European Union has established a harmonised scheme across its member states, with a consistent scheme design and a common unit of trade.

The Green Paper noted that, within these broad types of linking options, the Government would need to make choices about:

- the number of international units that would be accepted for compliance in Australia
- the types of international units that might be accepted for compliance in Australia
- whether Australian Kyoto units could be transferred outside Australia and, if so, how many.

## **11.3 Domestic compliance units and the Kyoto Protocol**

As Australia has ratified the Kyoto Protocol, its linking strategy is guided by the rules established under the Protocol. As a first step, the Government must decide on the unit of trade in the Scheme, and how this relates to Kyoto Protocol units. The Kyoto Protocol establishes quantified emission targets for industrialised countries and countries with economies in transition (Annex I parties) in the form of an absolute emission cap for each country for the period from 2008 to 2012 (the 'first commitment period'). Australia's target is 108 per cent of 1990 emissions. The Kyoto Protocol also provides a framework for international emissions trading (see Appendix C for more information on the Kyoto Protocol).

The Scheme will be the primary means by which Australia meets its national targets. As a result, there will need to be a relationship between Australian Kyoto units (assigned amount units (AAUs), and removal units (RMUs)), domestic emissions, and the Scheme.

The Government, having ratified the Kyoto Protocol as its first official act, must decide whether the units of trade created under the Australian Scheme will be Kyoto units or a separate Australian unit. Two options were canvassed:

- the Government could issue Australia's Kyoto units to liable entities within the Australian Scheme, making them the units of trade and compliance in the domestic Scheme
- the Government could create a distinct domestic unit (or permit) for the Scheme.

#### **Green Paper position**

A carbon pollution permit would be created for the scheme, and it would be distinct from Australia's international (Kyoto Protocol) units.

The disadvantages of the first approach are that the Scheme would be subject to Kyoto Protocol rules on unit issuance and banking, and that there is general uncertainty about the nature of international trading systems beyond 2012. As noted in Chapter 8, uncertainty about the rights associated with holding an international unit can adversely affect the efficient operation of the market.

The creation of Australian carbon pollution permits, which are distinct from Australia's Kyoto units, will enable the Government to control the flow of Kyoto units into and out of the Scheme, provide greater assurance of the Scheme's integrity, and will better allow Australia to manage its international obligations.

Creating a separate emissions unit for compliance purposes in the Scheme, backed by Kyoto units at the national level, is consistent with the approach taken by the European Union<sup>5</sup> and New Zealand.<sup>6</sup>

All stakeholders who expressed a view on this point supported the creation of a distinct domestic unit.

## Policy position 11.2

The Scheme will create carbon pollution permits, which will be distinct from Australia's international (Kyoto Protocol) units.

# 11.4 Accepting international units for compliance in the Scheme

Recognising robust and credible international units for compliance purposes in the domestic Scheme increases the abatement options available to liable entities, who will be likely to purchase international units rather than pursue abatement domestically if the international carbon price is lower than the domestic cost of abatement.

The Green Paper considered the following broad options:

- accepting international Kyoto units for compliance in the Scheme. These units can be counted towards Australia's target under the Kyoto Protocol
- accepting international non-Kyoto units for compliance in the Scheme. These units cannot be counted towards Australia's target under the Kyoto Protocol.

The Green Paper also considered whether, if such units were accepted, any restrictions should apply to how many international units could be accepted for compliance in Australia.

## 11.4.1 Quantitative restrictions on the use of international units

The Green Paper considered whether the use of international units should be subject to any quantitative restrictions. It canvassed three broad options:

- accepting no international units in the Scheme
- accepting eligible international units, subject to a quantitative restriction
- accepting all eligible international units.

### **Green Paper position**

Liable entities would be able to meet their compliance obligations in the scheme by using eligible Kyoto units, limited to a maximum percentage of each entity's obligation (for the period from 2010–11 to 2012–13).

The Green Paper canvassed potential disadvantages associated with Australia having access to an unlimited number of Kyoto units including:

- the use of flexibility mechanisms may not be considered 'supplemental' to domestic action, although 'supplemental' has not been defined
- the potential implementation risks associated with exposing the domestic Scheme to the current uncertainty about future international arrangements and possible significant uncertainty about and volatility in the international price
- the potential need for a higher degree of domestic abatement to ensure the ongoing credibility and acceptability of the Scheme (the community might reduce its support for the Scheme, particularly in the early years of the Scheme, if it perceives it to be merely driving an outflow of funds to other countries while requiring little domestic action).

The immediate priority was to minimise implementation risk. The preferred approach imposing quantitative restrictions on the use of Kyoto units—would manage risk while allowing liable entities to gain valuable experience in international carbon markets.

Some stakeholders supported the use of quantitative restrictions for the reasons canvassed in the Green Paper. For example, Babcock & Brown Power argued that care needed to be taken if Australia was to avoid becoming 'captive to international price volatility and trends as other schemes become established and developed' (Submission 488, p. 19). The Australian Industry Greenhouse Network similarly noted the potential for Australia to import the carbon price of larger markets (Submission 424, p. 5).

Others considered that a limit on international units would balance the price benefit of linking with the need to foster domestic action. For example, Hydro Tasmania stated: 'There should be limits on the acceptance of international credits to enable genuine focus on domestic abatement, which will ensure future national competitiveness in a carbon constrained economy' (Submission 849, p. 3). The National Australia Bank noted that the limited initial role for international linkages would 'bring forward and provide incentives for domestic abatement' (Submission 495, p. 2).

Some stakeholders considered that quantitative restrictions might be required to ensure Australia satisfies the supplementarity principle under the Kyoto Protocol framework (explained in Appendix C), and that quantitative restrictions might be needed to allow sufficient domestic abatement to ensure the Scheme's ongoing credibility and acceptability. For example, the Australian Council of Trade Unions (ACTU) considered that:

Failure of the scheme to drive domestic abatement could undermine public confidence in its ability to realise environmental objectives and threaten the stability of the carbon market. Guaranteeing that the majority of effort comes from domestic abatement would also be consistent with the principle of supplementarity (Submission 784, p. 9). As discussed in Appendix C, the Government is confident that, even with unlimited access to international units, Australia's use of the Kyoto Protocol flexibility mechanisms will be supplemental to domestic action.

Other stakeholders considered that a quantitative restriction should be set at such a level that price would generally dictate the extent of use. For example, the Garnaut Final Report considered that where a quantitative limit was set the limit should be binding only in unusual, potentially destabilising circumstances and, therefore, should be set so high that it would not be reached in a typical trading period.<sup>7</sup>

However, most stakeholders argued for unlimited access to Kyoto units, citing the benefit of unlimited access as a cost-control mechanism:

There is no economic logic in any limit; once markets and investors are convinced that the cost of carbon is now a given for future planning, they automatically pursue the optimum blend of 'make' or 'buy' solutions (International Emissions Trading Association, Submission 658, p. 4).

Australia should not restrict the import of emissions reduction 'credits' that could lower the price of permits in Australia (Australian Industry Greenhouse Network, Submission 424, p. 8 part 2).

The chief advantage of not limiting the number of international units that can be used for compliance is that domestic compliance costs would be minimised—liable entities would buy international units only if the units were less expensive than domestic compliance options. Access to Kyoto units would also inject greater liquidity into the Australian market.

In relation to the argument, discussed in the Green Paper, that too little abatement would occur in Australia, the Government does not consider it necessary to set minimum requirements through the Scheme for the amount of abatement that must occur in Australia. Domestic abatement will occur under the Scheme even with unlimited access to international units. The Scheme will reduce emissions in Australia by introducing a price on carbon. Where the price of carbon is above zero, emissions will be reduced and will be less than they would otherwise have been. With unlimited access to international units, the domestic price for carbon will move to align with the international price. As it is expected that the international price will remain above zero, all domestic abatement that is cost-effective at that price will occur.

Economic modelling by the Treasury (see Chapter 4) suggests that even with unlimited access to international units, the Scheme will drive significant reductions in Australia's domestic emissions from what they would otherwise have been. For example, in the Carbon Pollution Reduction Scheme -5 scenario, Australia's domestic emissions are projected to be 25 per cent lower than the reference scenario in 2020, and 60 per cent below the reference scenario in 2050. It is important to note that if Australia pursued equivalent emission reduction targets without allowing access to international credits, the domestic carbon price would need to be higher to stimulate additional domestic abatement. This would impose higher aggregate costs on the Australian economy.<sup>8</sup>

The Green Paper proposed limits on the number of Kyoto units that could be accepted for compliance principally because of the implementation risks involved, including the need to minimise exposure to unstable prices and the possibility that extremely low international

prices might undermine the credibility of the Scheme and derail Australia's transition to a low-carbon economy.

However, consultation with stakeholders indicates that concern about the potential price uncertainty and volatility in international markets is not widespread. In relation to those risks, the Government commissioned a report by Booz & Company to provide information about forecasts of international prices. The report found that, while there is significant uncertainty about future international arrangements, a reasonably well-functioning and forward-looking international market exists and has the capacity to account for and manage the uncertainty. As international negotiations progress, that uncertainty is likely to be reduced. Furthermore, the combination of expected demand by a range of national governments (based on robust estimates for the Kyoto Protocol first commitment period and indications of forward commitments by countries) and the inherent lags in seeking new project approvals means that there is little likelihood of a collapse in the price of international units.

The Government's final policy position is to allow an unlimited number of eligible international units to be accepted for Scheme compliance, recognising that the implementation risks posed by the acceptance of an unlimited number of eligible international units are likely to be minimal, and that accepting international units has the potential to:

- control domestic costs
- provide support for the international Kyoto architecture
- promote technology transfer, and
- facilitate Australia's involvement in international carbon markets.

## Policy position 11.3

The use of eligible international units for compliance in the Scheme will not be subject to any quantitative limitations.

## 11.4.2 Accepting international Kyoto units into the Scheme

Allowing liable entities to use Kyoto units to meet their compliance obligations will create a direct link with the Kyoto Protocol flexibility mechanisms. It will also create an indirect link with any Scheme that also accepts units created under those mechanisms, including the European Union and New Zealand emissions trading schemes and a number of regional schemes in the United States, all of which accept or propose to accept Kyoto units for compliance.

To use a Kyoto unit for compliance in the Scheme, an entity will need to acquire a Kyoto unit from the international market and transfer it into an account in the Australian national registry (See Appendix C).

#### **Green Paper position**

Subject to restrictions, the scheme would link internationally via the Kyoto Protocol's flexibility mechanisms in the early years of operation.

A broad range of stakeholders supported the preferred position. For example, Origin Energy agreed that 'recognising Kyoto units for compliance can increase flexibility for liable entities and provide a useful source of market liquidity in the early years. It also acts as a "safety valve" in ensuring Australian prices do not significantly exceed international prices' (Submission 815, p. 55).

Some groups disagreed with the position, questioning the credibility of certain Kyoto units. For example, Friends of the Earth stated that 'the international offset market, including the CDM is under regulated and the validity of much of the emission reductions claimed [is] questionable' (Submission 411, p. 5). Greenpeace supported the use of Kyoto units but argued that 'any credits accepted into the Australian [scheme] from the Kyoto Protocol flexibility mechanisms are from high quality sources that achieve permanent and additional abatement' (Submission 692, p. 16).

The use of Kyoto units in the Scheme is consistent with Australia's Kyoto Protocol obligations, and the Government considers that the Kyoto Protocol establishes a robust and credible framework for mitigation. Consistent with the environmental integrity criterion (one of the eight assessment criteria outlined in Chapter 5), as long as accepting a Kyoto unit into the Australian Scheme means that one less tonne of greenhouse gases is emitted elsewhere in the world, no restrictions on their use are needed.

The Government considers that allowing Kyoto units to be used is a cost-effective way of meeting Australia's national targets while at the same time encouraging the development of global carbon markets. It also believes that accepting international Kyoto units also acts as a useful 'safety valve' by ensuring that Australian prices do not significantly exceed international prices.

## Policy position 11.4

The Scheme will link internationally via the Kyoto Protocol's flexibility mechanisms from its commencement.

Liable entities will be able to surrender eligible Kyoto units for compliance in the Scheme.

## Types of Kyoto units to be accepted in the Scheme

Another key linking consideration is the eligibility of different types of Kyoto units for compliance in the Scheme. The Green Paper canvassed the arguments for and against accepting each type, all of which are equal to one tonne of carbon dioxide equivalent ( $CO_2$ -e):

• a certified emission reduction (CER) generated from a clean development mechanism (CDM) project under Article 12 of the Kyoto Protocol

- an assigned amount unit (AAU) issued by an Annex I country on the basis of its assigned amount (pursuant to Articles 3.7 and 3.8 of the Protocol); for example, Australia is allocated AAUs equal to 108 per cent of 1990 emissions
- an emission reduction unit (ERU) generated by a joint implementation (JI) project under Article 6 of the Protocol
- a removal unit (RMU) issued by an Annex I country on the basis of land use, land-use change and forestry activities (under Articles 3.3 and 3.4 of the Protocol).

All of these units are eligible compliance units under the Kyoto Protocol; that is, each can be used to offset one tonne of  $CO_2$ -e from any country's emissions.

The types of Kyoto units that can be used for compliance in the Scheme and those that can be held in the national registry can be differentiated. Limits on the use of certain types of Kyoto units for compliance do not limit an account holder's ability to hold or trade any of the Kyoto units (see Appendix C). However, restrictions will apply to the carry-over of certain Kyoto units held in the Australian national registry at the time of the carry-over (see Appendix C).

#### **Certified emission reductions**

The CDM is designed to recognise emission reductions that can be used by Kyoto parties with an obligation (that is, an emission reduction target) to meet their commitments under the Protocol as well as to support sustainable development in host developing country (the country in which the project occurs). The CDM is an offset mechanism that generates CERs based on differences between an estimated baseline (expected 'business as usual' emissions) and actual emissions. The mechanism does not lead to a net increase in global abatement because the use of CERs in Australia allows for an increase in domestic emissions. However, it potentially lowers the cost for a given emissions constraint.

## **Green Paper position**

CERs generated by CDM projects would be accepted for the period from 2010–11 to 2012-13, with the exception of those reductions that had associated contingent obligations and high administrative costs (currently, temporary CERs and long-term CERs from forestry-based projects).

CERs issued in the first Kyoto Protocol commitment period would be recognised for compliance in the scheme in 2012–13 and in subsequent years, in accordance with the rules set out in the Kyoto Protocol and any restrictions on the use of international units set out in the Australian scheme.

CERs generated through abatement from 2013 onwards by projects established in the first commitment period would be recognised for compliance in the scheme in 2012–13 and subsequent years, in accordance with the rules set out in the Kyoto Protocol and subject to any restrictions that apply to the use of international units set out in the Australian scheme.

Most stakeholders supported the use of CERs for compliance in the Scheme. However, some stakeholders—specifically, environmental non-government organisations such as Friends of the Earth (Submission 411), the Australian Conservation Foundation (Submission 809), the

Nature Conservation Council and Conservation Council ACT (Submission 555) and Greenpeace (Submission 692)—raised concerns about the environmental credibility of the CDM. Generally their concerns related to the lack of assurance that those credits would represent additional abatement. The CDM places no limit on emissions in developing countries and, although it applies rigorous verification procedures, any assessment of whether abatement is truly 'additional' entails a degree of judgment.

Specific concerns raised about CERs generated by certain types of projects were discussed in the Green Paper. As a result of concerns about the potential for nuclear projects to generate CERs, the Marrakesh Accords specifically prohibit the use of abatement arising from nuclear energy facilities to meet reduction commitments under the Kyoto Protocol. Some countries have restricted the use of certain CERs due to wider environmental and social impacts arising from some types of clean development projects (for example, the European Union Emissions Trading Scheme does not allow the use of CERs from large-scale hydropower projects).<sup>9</sup>

Some stakeholders considered that the Scheme should take a similar approach and not accept CERs from projects that have wider environmental and social impacts. For example, the Australian Conservation Foundation argued that the Scheme should not accept CERs 'that do not meet the principles of ecologically sustainable development and have adverse environmental and social impacts, such as large-scale hydropower projects' (Submission 809, p. 45). However, since such impacts do not relate to the greenhouse benefits that arise from such projects, the Green Paper indicated that the Scheme would be unlikely to be the most effective means of addressing those impacts.

Environmental groups expressed a desire that the import of Kyoto units be restricted to units backed by a high degree of environmental rigour. For example, the Australian Conservation Foundation argued that credits should be permitted in the Scheme only if 'they are screened to ensure they are from high quality sources that achieve permanent and additional abatement' (Submission 809, p. 42). Greenpeace considered that, as a minimum, CERs accepted into the Scheme should be required to meet the CDM Gold Standard (Submission 692). The Gold Standard for CDM was developed in 2003 by the World Wide Fund for Nature (WWF), SouthSouthNorth, and Helio International. It is designed to ensure that carbon credits are not only real and verifiable but that they make measurable contributions to sustainable development worldwide. It applies additional criteria to that used by the CDM.

The Government does not consider it necessary to accept only those CERs that meet additional criteria, such as the Gold Standard. For the following reasons, neither does it consider that it should assess the broader environmental and social impacts of CERs. First, one of the primary objectives of the CDM is to assist the sustainable development of the host country and, to that end, the Kyoto Protocol framework has established a robust system for crediting CERs. Therefore, because the Kyoto Protocol framework already ensures that all CERs are credible, robust, and meet sustainable development objectives, it is not necessary to apply a further layer of assessment (at an additional cost). Second, there are too few Gold Standard CERs available on the market, so restricting access only to those units would negate the benefits of linking to the CDM market in order to access low-cost compliance options. The Government considers that it is sufficient to work within the established Kyoto Protocol framework for CDM.

However, under the current rules, CERs generated from afforestation or reforestation activities are different from other types of Kyoto units, as they have only a limited life before

they need to be replaced—less than two commitment periods for tCERS (temporary CERS) and between 20 and 60 years for lCERS (long-term CERs). If these CERs were recognised in Australia's Scheme, the Government would need to replace them with other units when they expired. Because of the limited life of those CERs, the European Union and New Zealand schemes do not allow them to be used. Because of the contingent liability associated with the use of tCERs and lCERs (see Box 11.1), the Green Paper proposed that they not be accepted for compliance in the Scheme.

Most stakeholders, including the Climate Institute (Submission 702) and the Australian Council of Trade Unions (Submission 784), supported such restrictions. However, others argued against them. For example, GHD Pty Ltd considered that the Government should not discriminate against forestry CERs (tCERs and lCERs), as a 'significantly negative signal will be sent to those investing, or planning to invest, in REDD [reducing emissions from deforestation and degradation] projects' (Submission 635, p. 6).

The Garnaut Final Report also raised a concern about the continued role of the CDM, noting that, while the CDM has facilitated some engagement in mitigation by developing countries, the mechanism has limitations. The principal concern is that CDM is an offset mechanism that does not limit emissions in developing countries. The Garnaut Final Report preferred one-sided targets that allow for developing country commitments below business-as-usual emissions while still enabling them to benefit from the sale of emissions rights. Such an approach would eliminate the need to determine a counterfactual baseline (that is, what would have happened if the abatement had not been pursued), as is currently required under the CDM. The Garnaut Final Report considered that, to remove disincentives for taking on national commitments, no new CDM projects should be accepted from countries that are expected to take on targets. This would leave the CDM as a transitional mechanism that would apply only to those countries that are not expected to take on targets.

The CDM 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. The CDM engages developing countries in mitigation projects until they are able to take on binding commitments, and recognising CERs for compliance in the Australian Scheme is consistent with the international objectives criterion for optimal scheme design.

Several stakeholders agreed with those benefits of the CDM. For example, the ACTU supported the CDM 'as a means of driving technological change in developing countries' (Submission 784, p. ix). IETA pointed out the various benefits of CDM, including its cost-effectiveness and its ability to 'promote innovation and broad participation in the carbon market' and to 'achieve capital and technology transfer to developing countries, improving the opportunity for international climate policy advancements' (Submission 658, pp. 12–13).

The Government considers the CDM to be an important transitional mechanism, and believes that CERs should be recognised for compliance purposes in the Scheme. Because of the additional risk and contingent liability inherent in accepting long-term and temporary CERs from afforestation and reforestation activities, those units should not be recognised for compliance purposes.

The international community is considering a range of proposals to reform the CDM in an effort to ensure that it remains an effective mechanism in any future agreement. Rather than

limit the use of the CDM in the initial years of the Scheme, the Government will continue to work closely with the international community on these proposals.

Very few stakeholders provided explicit feedback on whether CERs should be accepted for compliance beyond 2012–13. Origin Energy supported the preferred position, but suggested that:

The Australian Government could play a more pioneering role in encouraging the development of CDM projects beyond 2012. The uncertainty surrounding the future of the CDM post-2012 is widely said to be impacting on investment confidence in the market. If the Australian Government signalled that it intended to recognise at least a small level of CER-standard units in the period beyond 2012, this could help support confidence in the market. A loss of investment momentum in the developing nations could be quite costly in the longer term. (Submission 815, p. 59)

As indicated in the Green Paper, where CERs can be counted towards Australia's international obligations at that time, there would be little risk associated with accepting them for compliance in the Scheme beyond 2012–13.

The Kyoto Protocol framework allows CERs issued in the first commitment period to be carried over to the second commitment period. Therefore, those units will be accepted for compliance in the Scheme beyond 2012–13.

Because carry-over does not happen until 2015 (after the 'true-up' period under the Kyoto Protocol) and is subject to quantitative limitations<sup>11</sup>, the Government will need to manage the carryover restrictions for any of those units that are used for compliance beyond the end of the first commitment period (see Appendix C for a discussion on managing the carry-over restrictions). The Government will also need to take into account any such units that are used for compliance after the end of the first commitment period when making decisions about what Kyoto units it will surrender at the end of the true up period (see Appendix C).

The Kyoto Protocol framework also allows for the creation of CERs from 2013 onwards. Many CDM projects established in the first commitment period will have crediting periods that go beyond the end of the first commitment period. Where units from such projects are certified under the international framework at that time, they can be accepted for compliance beyond 2012–13. However, the rules and procedures governing the CDM may change for the second commitment period, so there is no guarantee that all the types of abatement projects recognised in the first commitment period will continue to be recognised in a future agreement.

Origin Energy considers that the Government should indicate now that units of an equivalent standard to today's CERs (CER-standard units) will be accepted for compliance beyond 2012 (Submission 815, p 59). The main argument for giving early indication that CER-standard units could be used for compliance beyond 2012–13 is that it would provide more certainty for project investors and liable entities. However, because the future international architecture has not yet been decided, there is a risk that those units might not be counted towards Australia's future international commitments.

Recognising CER-standard units for compliance beyond 2012–13 will increase costs to Australia of meeting its future international emissions reduction targets, if those units are not internationally recognised at that time. For Australia to meet its international obligations, the

Government would have to tighten the Scheme cap or buy an equivalent number of compliant international units. Therefore, indicating now (before international arrangements for that period are confirmed) that liable entities can use CER-standard units in the period beyond 2012–13 would be potentially costly to the Australian taxpayer.

## Policy position 11.5

Certified emission reductions (CERs) generated under the Kyoto clean development mechanism will be accepted for compliance in the Scheme, with the exception of those that have associated contingent obligations and high administrative costs (currently, temporary CERs and long-term CERs).

In accordance with the rules set out in the Kyoto Protocol and any restrictions that apply to the use of international units in the Australian Scheme:

- CERs issued in the first commitment period of the Kyoto Protocol will be recognised for compliance in the Scheme in 2012–13 and in subsequent years
- CERs issued for abatement that occurs from 2013 onwards, by projects established in the first commitment period, will be recognised for compliance in the Scheme in 2012–13 and subsequent years.

#### Assigned amount units

The Green Paper discussed three basic options for the treatment of AAUs in the Scheme: recognise them for compliance purposes; decline to recognise them; or recognise AAUs from some sources but not others.

#### **Green Paper position**

No AAUs would be accepted for compliance in the scheme for the period from 2010–11 to 2012–13. This position would be reviewed in the light of international developments.

Some stakeholders agreed with the Government's approach, noting the potential implications for the stability and credibility of the Scheme in accepting AAUs. For example, Origin Energy stated that 'unlike CERs/ERUs, an influx of "hot air" AAUs could have a destabilising effect on the market in the transitionary period' (Submission 815, p. 57). The Investor Group on Climate Change considered that AAUs should be accepted for compliance where 'hot air' AAUs can be effectively excluded (Submission 697). Other stakeholders suggested that the Scheme should accept credible and robust units, but did not specifically indicate whether AAUs should be accepted.

The Green Paper noted that allowing AAUs to be used for compliance in the Australian Scheme would have a number of benefits:

• AAUs are likely to offer a low-cost compliance option for liable entities, promoting a costeffective way for the Scheme to help meet Australia's emissions targets • Trade in AAUs represents trade with countries that have agreed to accept emissions constraints. Encouraging acceptance of such constraints is consistent with Australia's international objectives.

However, the Green Paper also noted some concerns about the environmental credibility of some AAUs—so-called 'hot air' or surplus AAUs allocated to those countries whose economies have contracted since 1990. Some stakeholders argued that using those AAUs in Australia would not necessarily mean that emissions would be reduced elsewhere.

One option was to allow so-called 'greened' AAUs to be accepted in the Australian Scheme. Some of the countries that have surplus AAUs have developed 'green investment' Schemes, in which the proceeds of sales of AAUs are directed to accredited environmental projects, such as those targeting energy efficiency, encouraging fuel switching or slowing the rate of deforestation. However, such investment schemes are likely to be less stringent in their requirements than those of Track 2 joint implementation under the Kyoto Protocol (explained below).

Given uncertainty about future arrangements, it is not clear how the supply of AAUs will develop over the first commitment period. The volume of surplus AAUs is potentially large compared with the expected compliance shortfall (that is, the difference between the number of Kyoto units held by an Annex I country and its greenhouse gas emissions over the commitment period) for Kyoto Protocol parties in the first commitment period. The World Bank estimates that the shortfall could be 3.3 billion tonnes of CO<sub>2</sub>-e, after taking account of domestic sinks, but AAUs have the potential to deliver some 7.1 billion tonnes.<sup>12</sup> This potential oversupply would have implications for the global price. If Australia recognised AAUs for compliance in the Scheme, the price uncertainty might have implications for Scheme stability. However, those countries with surplus AAUs can be expected to act strategically in deciding whether to sell their surplus AAUs, and may well decide to bank surplus units for use in future commitment periods.

All AAUs are legitimate compliance units under the Kyoto Protocol. It is reasonable to assume that they will be used at some point by a country within the Kyoto protocol framework. An AAU used in Australia cannot be used by another country. Therefore, its use in Australia will have no impact on aggregate global emissions.

Because of concerns about the use of AAUs, the New Zealand scheme prohibits their use, except where they meet criteria outlined in regulations. The regulation-making power allows the New Zealand Government to consider AAUs from green investment schemes. While the European Union's scheme restricts imports of surplus AAUs, member states (including the Eastern European countries that have been granted entry to the European Union) can trade in AAUs outside the Scheme and can use those units to comply with their Kyoto obligations.

The Garnaut Final Report acknowledged concerns about the use of surplus AAUs, but also noted that future treaties would not be credible if parties, whose targets are agreed to at the time of signature, are not allowed to reap the financial rewards if they exceed their targets. It suggested that pre-2012 purchase of AAUs could be restricted to government, and not open to entities under the Scheme.

The Government considers that the Scheme should not recognise AAUs for compliance in the first commitment period, given their potential impacts on the stability and credibility of the Scheme. It is important to note that Australia's circumstances are different from those of

many other Annex I Kyoto Protocol parties because it is establishing its Scheme while it is projected to meet its Kyoto target. This position will be reviewed for the post-2012–13 period in the light of international negotiations.

This does not rule out the Government considering the purchase of AAUs for Australia's compliance under the Kyoto Protocol in the event of a shortfall.

## Policy position 11.6

Assigned amount units will not be accepted for compliance in the Scheme. This position will be reviewed for the post-2012–13 period in the light of developments in international negotiations.

#### **Emission reduction units**

The Kyoto Protocol joint implementation (JI) mechanism allows a country with a Kyoto Protocol target to implement emissions reduction projects, or projects that enhance carbon sinks, in another country that also has a Kyoto Protocol target. The abatement created by such projects is recognised in the form of emission reduction units (ERUs), which can be counted in the Kyoto Protocol target of the country that instigated the project.

To issue ERUs, the host country (the country in which the project occurs) must cancel an equivalent number of AAUs from its national registry. The reduction in AAUs will be matched by a reduction in the national emissions inventory as a result of the project.

The JI mechanism includes arrangements for ensuring the environmental credibility of emissions reduction projects:

- under Track 1 of the mechanism, emissions reductions are verified by the host country, which has an incentive to ensure that units are issued only for real reductions, as host countries also have binding Kyoto Protocol targets
- under Track 2 of the mechanism, ERUs are verified by the JI Supervisory Committee using robust and internationally recognised methodologies and processes.

The Green Paper discussed two basic options: to accept ERUs or not to accept them.

#### **Green Paper position**

ERUs created under the Kyoto Protocol's joint implementation mechanism would be recognised for compliance purposes in the scheme.

ERUs issued in the Kyoto Protocol first commitment period would be recognised for compliance in the scheme in 2012–13 and in subsequent years, in accordance with the rules set out in the Kyoto Protocol and any restrictions applying to the use of international units set out in the Australian scheme.

Most stakeholders supported the preferred position, agreeing with the benefits discussed in the Green Paper, that:

- ERUs are likely to offer a low-cost compliance option for liable entities, promoting a costeffective way for the Scheme to help meet Australia's emissions targets
- trade in ERUs is trade within the aggregate emissions constraint imposed by the Kyoto Protocol and can be considered more effective than trade in international offset credits from uncapped sources.

Analysis by Booz & Company for the Government, indicated that the potential supply of ERUs is large. Many countries with surplus AAUs are expected to be the sources of most ERUs that will come onto the market. To date, most ERUs have come from projects that have been verified under Track 2 by the JI Supervisory Committee. However, of critical interest to the market is the potential volume of ERUs that may flow from Track 1 projects in those countries that have surplus AAUs. Track 1 JI projects could be used to convert surplus AAUs into ERUs, however, it is most likely that such ERUs would be associated with real abatement.

The Government considers that the Scheme should recognise ERUs for compliance purposes, as these are legitimate compliance units under the Kyoto Protocol framework. The Government will need to take into account any ERUs that are used for compliance after the end of the first commitment period when making decisions about what Kyoto units it will surrender at the end of the true up period and in managing the carry-over restrictions (see Appendix C).

The Green Paper also indicated that the Government would accept ERUs beyond 2012–13, where such units could be counted towards Australia's international obligations at that time. As the Kyoto Protocol framework allows for ERUs issued in the first commitment period to be carried over into the second commitment period, those units can be used for compliance in the Scheme beyond 2012–13. However, because ERUs converted from RMUs cannot be carried over, such units will not be accepted for compliance in the Scheme beyond 2012–13.

The Green Paper also indicated that the Kyoto Protocol framework does not allow for the creation of ERUs from 2013, unless new emissions targets have been agreed. If an agreement is reached and ERUs remain valid compliance units under the international architecture, those units will be accepted for compliance under the Scheme.

If agreement on a new international framework is delayed, Australia could continue to recognise ERU-equivalent units (that is, units associated with abatement by projects that were established under JI in the first commitment period) through direct bilateral links, in which case the standard conditions for such links would apply (see Section 11.6.1).

As international negotiations continue and arrangements are confirmed for the post-2012 period, the Government will be in a better position to specify which international units (including any new types of units) will be recognised for compliance in the Scheme for the post-2012–13 period.

## Policy position 11.7

Emission reduction units (ERUs) created under the Kyoto Protocol's joint implementation mechanism will be recognised for compliance purposes in the Scheme.

ERUs issued in the first commitment period of the Kyoto Protocol will be recognised for compliance in the Scheme in 2012–13 and in subsequent years, in accordance with the rules set out in the protocol and any restrictions that apply to the use of international units in the Australian Scheme.

ERUs converted from removal units in the first commitment period will not be recognised for compliance purposes in the Scheme from 2012–13.

#### **Removal units**

Removal units (RMUs) are units issued by a Kyoto Protocol country on the basis of land use, land-use change and forestry activities under Articles 3.3 and 3.4 of the Kyoto Protocol (see Appendix C for further detail). Few countries are likely to be in a position to generate RMUs, so the potential for trade in RMUs is likely to be limited.

Nonetheless, the Green Paper considered two options for accepting RMUs: accept them; or do not accept them.

#### **Green Paper position**

Removal units would be recognised for compliance purposes in the scheme.

Most stakeholders who commented on this preferred position supported it. However, the Australian Conservation Foundation disagreed because it had 'concerns with the ability to accurately account for emissions under article 3.3 and 3.4 under the Kyoto Protocol'. The foundation noted that 'RMUs are not accepted in the European [emissions trading scheme]' and expressed a concern 'that RMUs do not represent additional abatement' (Submission 809, p. 45).

Robust methodologies established under the Kyoto Protocol framework ensure the integrity of RMUs. While the expected limited trade in RMUs means that they are not likely to provide liable entities with a large increase in abatement opportunities, the Government can see no compelling argument not to allow entities to use them for compliance.

The Kyoto Protocol does not allow for RMUs that are issued in the first commitment period to be carried over (banked) into the second commitment period. Therefore, those units will not be accepted for compliance in the Scheme beyond 2012–13. The Government will need to take into account any such units that are used for compliance after the end of the first commitment period when making decisions about what Kyoto units it will surrender at the end of the true up period (see Appendix C).

## Policy position 11.8

Removal units (RMUs) will be recognised for compliance purposes in the Scheme.

RMUs issued in the first commitment period will not be accepted for compliance in the Scheme beyond 2012–13.

# 11.4.3 Use of international non-Kyoto units for compliance in the Scheme

The Green Paper canvassed the option of allowing international emissions units that cannot be counted towards Australia's obligations under the Kyoto Protocol to be recognised for compliance under the Scheme. Such units are referred to here as 'non-Kyoto' units.

Possible non-Kyoto units include those generated by schemes in non-Kyoto countries (such as those generated in the United States), voluntary market credits, and units from abatement not currently recognised in the CDM rules (such as avoided deforestation). Units generated in domestic and regional schemes of Kyoto countries are also considered non-Kyoto units, except where the transfer of such units is accompanied by a Kyoto unit (Section 11.6 discusses potential bilateral links).

The Green Paper considered two options, to accept non-Kyoto units that are robust and credible; or to not accept non-Kyoto units.

#### **Green Paper position**

International non-Kyoto units would not be accepted for compliance in the Scheme. This position would be reviewed for the post-2012–13 period in the light of future developments in international negotiations.

Australia would continue to support the development of robust, internationally accepted methodologies for reductions from deforestation and forest degradation in developing countries. Those reductions are currently not recognised under the CDM.

Most stakeholders supported the decision to exclude non-Kyoto units from the Scheme. The ACTU stated that it would oppose 'any proposal that may result in the [Australian] Government being forced to purchase additional Kyoto units to make up any shortfall caused by the recognition of non-Kyoto units' (Submission 784, p. x). The Asia Pacific Emissions Trading Forum acknowledged that the inclusion of non-Kyoto Protocol credits 'can increase the cost for Australia of meeting international emission reduction obligations' and that 'such costs must clearly be kept in check' (Submission 904, p. 3).

Stakeholders generally agreed that the Government should continue to develop methodologies to encourage the acceptance of units from reducing emissions from deforestation and forest degradation (REDD) in developing countries. For example, the Australian Conservation Foundation considered that 'Australia's efforts should focus on establishing an appropriate, holistic REDD mechanism in the next global climate treaty. In the interim, carbon credits from avoided deforestation abroad should be excluded from [the scheme]' (Submission 809,

p. 43). Origin Energy (Submission 815), GHD (Submission 635) and the Climate Institute (Submission 702) expressed similar views.

The International Emissions Trading Association argued that REDD may play an important role in the future, referring to the Bali Roadmap, which called for consideration of policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries. They note that, 'given Indonesia's impact on worldwide atmospheric carbon concentrations and its close proximity, Australia has a unique opportunity to lead the world in developing REDD offsets and linking this market to the [scheme]' (Submission 658, p. 6).

A few stakeholders urged the Government to accept REDD credits as soon as the Scheme commences. For example, the energy industry 'considers that REDD could be included at Scheme commencement, as an eligible instrument subject to the same quantitative limitations as the Kyoto mechanisms, to assist in achieving the Scheme caps at least cost and encourage wider-acceptance of these sinks' (Energy Supply Association of Australia and others, Submission 715, p. 17).

Robust methodologies for estimating and crediting abatement from avoided deforestation have not yet been developed, although Australia's International Forest Carbon Initiative will help to develop them through practical demonstration activities in Indonesia and possibly Papua New Guinea. It would be extremely problematic to allow for the use of REDD credits before such methodologies are available.

While Australia aims to have incentive-based market mechanisms to encourage developing countries to reduce emissions from deforestation and forest degradation included in a future international response to climate change, it would be premature to recognise units from such activities in the Scheme until they are internationally recognised.

The Scheme should recognise units from Schemes only if those units are robust and credible.

While allowing the use of robust non-Kyoto units for compliance will widen the field of available abatement options in the Scheme and lower compliance costs, it will increase the cost to Australia of meeting its international obligations, since those units will not count towards Australia's Kyoto Protocol target. If units that are not internationally recognised are allowed for compliance purposes, the Government may need to reduce the Scheme cap or buy additional compliant international units to meet Australia's international obligations. More broadly, linking arrangements would need to ensure consistency with Australia's international obligations.

It is also likely that allowing non-Kyoto units will be a barrier to efforts to develop linkages with other emissions trading Schemes in countries that have ratified the Kyoto Protocol.

Accepting non-Kyoto units is also likely to add to the administrative complexity of the Scheme, as arrangements would be needed to ensure that units are environmentally credible and have not been double-counted because they have been included in other domestic schemes.

For these reasons, international non-Kyoto units will not be accepted for compliance in the Scheme. However, the use of international units that are not currently internationally recognised could be revisited once the shape of a post-2012 framework is clearer. It is

possible that credible non-Kyoto units will be recognised in the post-2012 framework. All Kyoto parties are likely to have an interest in ensuring that the new framework recognises all credible forms of abatement. For example, the Phase III proposal for the European Union Emissions Trading Scheme (2013 to 2020) has provisions to link with credible schemes in any country or administrative entity.<sup>13</sup>

## Policy position 11.9

International non-Kyoto units will not be accepted for compliance in the Scheme for the period from 2010–11 to 2012–13. This position will be reviewed for the post-2012–13 period in the light of future developments in international negotiations.

Australia will continue to support the development of robust, internationally accepted methodologies for assessing avoided emissions from deforestation and forest degradation in developing countries. Such methodologies are currently not recognised under the CDM.

# 11.4.4 Notification of the types of international units that will be accepted for compliance in the future

Linking rules are a key determinant of the domestic carbon price, and a predictable permit price is important for investor certainty. However, the types of international units that could potentially be accepted into the Scheme are likely to change over time.

Given the importance of linking rules to market expectations about prices, it is desirable that market participants know what types of international units will be accepted for compliance in the future. In considering how much notice, if any, would be given of changes to the types of international units that can be used for 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 the international market and framework develops and new types of units become available).

### **Green Paper position**

The Government would:

- at the end of 2008, in the White Paper, determine and announce quantitative limits on the use of Kyoto units by liable entities from 2010–11 to 2012–13, in conjunction with decisions on the national trajectory and scheme cap
- in early 2010, confirm quantitative limits that might apply for five years up to and including 2014–15
- thereafter, extend the certainty on quantitative limits that might apply by one year, every year
- at the end of 2008, in the White Paper, confirm the types of Kyoto units that will be recognised for compliance in the scheme from 2010–11 to 2012–13
- in early 2010 confirm the types that will be recognised for five years up to and including 2014–15
- thereafter, extend the certainty on the types that will be recognised by one year, every year.

The Government sought stakeholder input on how much notice should be given before qualitative restrictions were changed, including in a situation in which the environmental integrity of a particular type of international unit had been compromised.

The use of eligible international units for compliance in the Scheme will not be subject to any quantitative restrictions from the commencement of the Scheme.

The remaining consideration is how much notification, if any, will be given of qualitative restrictions, such as decisions that:

- a type of international unit is no longer accepted for compliance
- an additional type of international unit is accepted for compliance.

Stakeholders agreed that clarity is highly desirable and that notice should be given.

BP Australia stated that notice of a change in the qualitative restrictions 'should follow the rolling 5 year certainty period with any new change to be recognised in the 5th year when the rolling 5 year period is extended each year' (Submission 355, p. 10).

The energy industry agreed with the need for certainty, arguing that 'any limitations on the use of international mechanisms should be announced early and simultaneously with Scheme caps as they will be a critical determinant of the emissions price' (Energy Supply Association of Australia, Submission 715, p. 17). Origin Energy elaborated further on the desirability of making decisions for the long term, noting that:

From an investment perspective, there is a downside in making several decisions that relate only to a relatively short period (2010–12) and delaying longer term decisions until later ... [It] would be ideal if announcements made in 2010 would clarify the linking arrangements for longer than 5 years (Submission 815, p. 62).

A range of considerations need to be taken into account in determining an appropriate period of notice:

- First, changing the rules to disallow one type of unit or to allow a new type is unlikely to fundamentally change the domestic price, because other types of acceptable units would be substitutes.
- Second, new types of units that are substitutes for other Kyoto units might become available under the post-2012 international framework. Accepting those units for compliance is not likely to have a significant price impact, because any additional supply from the new unit would be reflected in the international price not only of that type of unit, but also of other units that are substitutes. Therefore, there would not be a strong argument for delaying the acceptance of the new type of unit for five years.
- Third, to establish a direct bilateral link with another country's scheme, the Australian Scheme would need to recognise the units of the other scheme for compliance, and vice versa. Where acceptance of the other scheme's unit would not have a significant impact on the permit price in the Australian Scheme, there would not be a strong argument for delaying acceptance for five years. This is likely to be the case where both schemes already accept units from a third scheme; for example, where both schemes already accept CERs or ERUs from the Kyoto Protocol's flexibility mechanisms.
- Fourth, the effect of accepting of a new type of unit on the market price is only ever likely to be a reduction, because the market would simply not use the new type of unit if its price were higher than that of substitutes (that is, the current permit price). A benefit would be that the cost of compliance would be reduced and, given that the Scheme will only accept robust and credible units, this would ensure that lower cost abatement options are chosen. However, acceptance would also reduce the asset value for permit holders. Providing little or no notification before the new unit was accepted would have implications for investment certainty—investors would need to take into account the uncertain potential value of permits and associated abatement projects when making their investment decisions.
- Finally, if the credibility of a type of international unit recognised for compliance were compromised and the Scheme continued to recognise the unit, the Scheme's credibility could be significantly affected. The ability to change the rules quickly would be an advantage, because it would allow the Government to maintain the integrity of the Australian Scheme; on the other hand, entities that invested in good faith in such units would be disadvantaged if no reasonable notice of rule changes were given.

It is important to retain the right to disallow a certain type of international unit at any time to ensure the environmental integrity of the Scheme. If an eligible Kyoto unit's environmental integrity is compromised, the Government will respond quickly to ensure the ongoing credibility of the Scheme while the international community resolves the matter. Action could be undertaken so that no new units of that type could enter Australia.

Similarly, if an existing Kyoto unit is no longer recognised in the post-2012 framework, it would be better for the Government to act promptly to reflect the change. To avoid disadvantaging liable entities who had bought those units in good faith, they would be able to use it for compliance in the current compliance year but not thereafter. Concerns that this would open the Scheme up to a 'flood' of compromised units are unfounded, as the Government would also retain the right to disallow that type of unit from entering the Australian registry. Only units already in the registry before the decision would be used for compliance.

The Government will add to the types of acceptable compliance units from time to time, where the addition is consistent with the objective of the Scheme, including Australia's international objectives and obligations. However, it will only add a new type of unit after consulting stakeholders, assessing the expected impact on the price and stability of the Scheme, and notifying the market. The approach will be to provide five years notice before accepting a new type of unit, if it is expected that the unit will have a significant impact on domestic permit price.

#### Policy position 11.10

The Government will retain the right to disallow the use of a given type of international unit for compliance in the Scheme at any time to ensure the environmental integrity of the Scheme and consistency with Australia's international objectives.

If a type of unit was accepted 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.

The Government may add to the types of international units that are recognised for compliance under the Scheme, where:

- the addition does not compromise the environmental integrity of the Scheme
- the addition is consistent with the objective of the Scheme, including Australia's international objectives
- there has been consultation with stakeholders, analysis of the expected impact on the permit price by an independent review, and notification to the market.

The Government's general approach will be to give five years notice of the acceptance of new types of units that are expected to have a significant impact on the permit price.

# 11.5 The sale and transfer of domestic permits to international markets

An important consideration is whether the Scheme will allow for the sale and transfer (export) of carbon pollution permits to international markets and, if so, whether such movements will be restricted in any way.

The Green Paper noted that the Australian Scheme could allow for exports of permits by either:

• allowing Australian permit holders to convert their carbon pollution permits into Kyoto units for sale and transfer via the international transaction log to an account in another country's national registry (New Zealand takes a similar approach)

or

• hosting joint implementation projects, which would involve the cancellation of an Australian assigned amount unit (AAU) and the creation and potential export of an emission reduction unit (ERU).

An alternative approach, not discussed in the Green Paper, is for the Government to negotiate a bilateral link with another country's scheme, whereby each scheme recognises the other's units for compliance. The transfer of an Australian carbon pollution permit to the other scheme would be accompanied by the transfer of an Australian AAU at government level to ensure that the other country's international obligations can be met, and vice versa.

The Green Paper canvassed the broad options of unrestricted, limited and no exports of domestic permits from Australia to other countries.

The commitment period reserve under the Kyoto Protocol means that the Australian Scheme could not allow for the unlimited transfer of Australia's Kyoto units.

Also, it would be extremely difficult to prevent the sale of Australian permits to parties in other countries. Other countries or voluntary schemes could decide unilaterally to recognise the surrender of Australian permits in Australia's registry for their own compliance purposes. This is unlikely to be a significant issue because such permits could not be counted towards other countries' international commitments unless they were accompanied by a transfer of an equivalent number of Kyoto units.

## **Green Paper position**

To facilitate a smooth start to the scheme and to minimise implementation risks, the Government would not allow for the sale and transfer of Australian domestic units to other countries.

Most stakeholders supported the preferred position. For example, the energy industry agreed with 'measures to limit potential for Australian permits to be exposed to international markets' (Energy Supply Association of Australia and others, Submission 715, p. 17). The Australian Financial Markets Association noted the benefits of export but recognised the imperative for short-term restrictions to 'minimise implementation risk' (Submission 550, p. 15). The Climate Institute (Submission 702), ERM Power (Submission 571) and the ACTU (Submission 784) also supported the restriction on export proposed in the Green Paper. The Investor Group on Climate Change supported restrictions on the ability to export in the short-term (Submission 697).

However, some stakeholders did not agree with the prohibition on export. For example, the CO2 Group considered that 'it makes no economic sense to limit Australia to a position of

being an offset credit importer when we have substantial potential to be a major offset exporter' (Submission 589, p. 3). IETA pointed out that 'if Australia expects to see a flow of capital inward through linking to economies with a higher initial cost for carbon, this would result in market expansion for Australian low-emission goods and technologies' (Submission 658, p. 13).

Both Origin Energy (Submission 815) and the Investor Group on Climate Change (Submission 697) considered that such a restriction should be reviewed after the initial years, when the scheme was functioning well.

Exporting Australian permits would reduce the number of permits in the Scheme, increasing the Australian permit price and resulting in relatively more abatement occurring in Australia than would otherwise be the case. It would also create new markets for providers of domestic abatement. It would increase the inflow of foreign capital, providing a stimulus for domestic abatement and investment in low-emissions technologies, and contribute to reducing the costs of global mitigation and increasing global liquidity. Therefore, as indicated in the Green Paper, the Government considers that the ability to sell Australian permits into foreign markets is generally desirable.

The Treasury modelling indicates that Australia is not expected to be a net exporter. However, adding international demand to the domestic Scheme has the potential to increase upward pressure on the domestic price of Australian permits. This would be the case only if the Australian price was otherwise below the international price. In this case, with export and unlimited access to imported compliance permits, domestic prices would converge with international prices.

There is considerable uncertainty over future international prices. A restriction on the ability to export helps to reduce upside price risk in the domestic Scheme. However, prohibiting export would mean that Australia cannot take advantage of potential gains from trade, so delaying the ability to export permits indefinitely would not be consistent with the Government's preference for open trade.

Allowing exports could also add to the complexity of the Scheme. The Government would need to establish suitable administrative arrangements for exports and for managing the commitment period reserve.

The Australian Securities Exchange stated that it is important to consider fully the interactions of the proposed prohibition on export with banking and the price cap (Submission 811). A decision to export while the price cap is in place would be problematic. Where the international price moves above the price cap, Australian permits would be exported and liable entities would access the price cap for compliance. As discussed in Chapter 8, accessing the price cap effectively loosens the Scheme cap. Australia would have to buy additional Kyoto units on the international market to meet its international obligations, and foreign entities would be able to access the price cap at the expense of the Australian taxpayer. Some potential linking partners, such as the European Union, have indicated that they will not link with a Scheme that has a price cap (Section 11.6.2 discusses this matter further).

The Government considers that the immediate priority is to minimise Scheme implementation risks. Therefore, the Government will not allow the export of permits in the early years of the Scheme.

## Policy position 11.11

The sale and transfer of Australian permits to international markets will not be permitted in the initial years of the Scheme.

When allowed, exports of permits to international markets and other countries will be achieved either:

• by allowing permit holders to convert a carbon pollution permit into a Kyoto unit for subsequent sale and transfer to international markets

or

• by allowing the direct transfer of permits, where a bilateral link with another country's Scheme is established and there is an agreement that a shadow transfer of international units will occur at the government level.

## **11.5.1** Providing clarity on the capacity to export in the future

While the Scheme will not allow for exports in initial years, over the longer term exports are desirable. Market participants should know how much notice they will be given of a future decision to allow exports.

Similar periods of market certainty are required on export provisions, on the Scheme cap, and on the acceptability of particular types of international units in the Australian Scheme (Section 11.4.4). The need for market certainty, to help promote an economically efficient response, must be balanced against the need for policy flexibility.

## **Green Paper position**

Restrictions on the sale and transfer of Australian permits to other countries for the period from 2010–11 to 2012–13 would be confirmed in the White Paper. In 2010, the Government would announce any provisions and restrictions that might apply to exports from 2012–13 to 1014–15, and would extend the certainty thereafter by one year every year, providing five years notice of changes in export provisions.

Stakeholders supported the Scheme's general approach to provide certainty on medium-term policy settings. For example, Transfield noted the importance of providing a 'sufficient level of clarity looking forward upon which to base investment decisions' (Submission 478, p. 3). The Australian Finance Markets Association (Submission 550), BP Australia (Submission 355) and Engineers Australia (Submission 322) expressed similar views. Most stakeholders agreed that it would be important to provide adequate notification of any decision to allow for exports and of any subsequent changes to arrangements.

Some suggested notice of less than five years. However, there is a strong argument for giving the same period of notice as for other key price determinants: providing shorter notice for exports would negate the benefits of providing a longer period for other design elements. The

Government considers that five years notice provides the right balance between medium-term market certainty and policy flexibility.

Further analysis, by Baker & McKenzie, suggested that with banking, market participants will price in expectations of the future value of exports if they consider exporting a possibility in the near term. Where there are expectations that the price in Australia will be below international prices, the prohibition on exports in the initial years of the Scheme will not remove all potential upward pressure on prices. The requirement for five years notice of changes to the export rules will substantially address this concern, as the market is likely to discount future values of exports because of the costs of holding permits across a number of years.

However, many stakeholders agreed that Australia should further investigate potential direct bilateral links with the schemes of other countries, such as with the New Zealand scheme. To establish a two-way link, Australia will need to allow both exports and imports of permits or units between the two countries. If establishing the link is not expected to have a significant impact on permit prices, there would be little argument for delaying the link for five years.

Both the New Zealand scheme and the Australian Scheme are expected to import the international price, so establishing a bilateral link would not be expected to have a significant impact on the price. However, the New Zealand scheme allows for the export of permits. Establishing a bilateral link with New Zealand while a price cap is in place in the Australian Scheme could potentially be problematic in the same way that allowing for the export of permits in the Australian Scheme would problematic. The New Zealand Government is currently undertaking a review of its scheme, to be finalised in 2009. Without pre-empting the outcome of this review, where the design of the schemes becomes even more closely aligned, establishing a direct bilateral link would not be expected to have a significant price impact.

## Policy position 11.12

The Government will give a minimum of five years notice of a decision to allow the sale and transfer of Australian permits to international markets, except when establishing a bilateral link and:

- an independent review, including stakeholder consultation, finds that establishing the bilateral link will not have a significant impact on the permit price in the Scheme
- the responsible minister decides to waive or shorten the notice period.

## 11.5.2 Hosting joint implementation projects in Australia

JI allows other Kyoto parties and private entities to undertake emission reduction projects in Australia. Hosting JI projects here is an alternative mechanism to the sale and transfer of abatement to international markets. Regardless of the rules for hosting JI projects in Australia, Australian entities can participate in such projects in other countries.

JI projects receive ERUs equivalent to the abatement generated by the projects. The ERUs can be used by other Kyoto Protocol parties to meet their obligations. Although Australia is left with fewer assigned amount units, the reduction should be matched by a reduction in the Australian national emissions inventory as a result of the JI project. The Green Paper considered whether Australia should host JI projects. The options included hosting such projects:

- in covered sectors after Scheme commencement
- in uncovered sectors before their inclusion in the Scheme
- in uncovered sectors that cannot be included in the Scheme
- before the start of the Scheme.

#### **Green Paper position**

Australia would not host JI projects in sectors covered by the scheme.

Decisions on JI projects for uncovered activities would be aligned with decisions on domestic offsets.

The scheme would not include domestic offsets (and therefore JI) from agricultural emissions during the period before decisions on coverage of that sector's emissions were made.

In mid-2009, the Government would consider the scope for offsets (and JI) in sectors that cannot be included in the scheme.

Australia would not host JI projects before the start of the scheme.

Stakeholders had mixed views about the proposed approach to JI. The Climate Institute (Submission 702) and the ACTU (Submission 784) supported all elements of the preferred position on JI.

In regards to allowing JI in covered sectors, several stakeholders disagreed with the Government's preference to disallow it because, in their view, pursuing JI Track 2 projects allows Australia to avoid the creation of an offset governance regime by relying on the processes and procedures established by the JI Supervisory Committee. This view was held by the Australian Financial Markets Association, which recognised the merit of Australian-based JI (Submission 550, p. 15).

Others disagreed because, in their view, allowing JI will foster investment. For example, the Carbon Reduction Institute argued that JI 'will attract the involvement and efficiencies of the private sector to the implementation of the lowest cost of emission reduction measures in Australia' (Submission 547, p. 1). The Institute noted the 'immense potential for JI projects within Australia due to the emissions intensity of our electricity grid and the availability of other greenhouse reduction projects'. Similarly, TEPCO Forests Australia Pty Ltd also wanted to see Australia host JI, arguing that the 'advantage for the Government to host JI projects [is] that [such projects] are contributing to continuous foreign investments in Australia's rural sector' (Submission 303, p. 2).

The Government maintains the view that, once the Australian Scheme begins, JI abatement projects should not be considered for emissions sources that are covered by the Scheme

because such projects are unlikely to deliver additional abatement. The arguments against offset arrangements in covered sectors are set out in Chapter 6.

In relation to forestry, investors would be able to earn permits under the Scheme, but would not be entitled to transfer them outside Australia. The opt-in arrangements for forestry are also discussed in Chapter 6.

In relation to uncovered sectors, the CO2 Group argued that Australia should allow the sale of offset credits, provided bilateral or multilateral agreements are in place to recognise such credits (Submission 589). Decisions about hosting JI projects in uncovered sectors are closely related to decisions about the coverage of the Scheme and, in particular, the remaining scope for offsets. Because of the broad coverage of the Scheme, there is limited scope for offsets. The Government considers that decisions about hosting JI projects for abatement from sources not covered by the Scheme should be aligned with decisions on domestic offsets (see Chapter 6).

Importantly, any potential for JI projects in uncovered sectors will be dependant on the Government's expectations about emissions reductions in those sectors. While they are not covered by the Scheme, the Government is committed to a package of complementary measures to address emissions from uncovered activities (see Chapter 19). Also, expectations about emissions reductions from uncovered sectors will be taken into account when setting the Scheme cap (see Chapter 10). Any abatement from JI projects in uncovered sectors will need to be additional to that which is expected from uncovered sectors when Government is setting the Scheme cap. If JI credits are issued for abatement that was already anticipated, the Government would need to purchase another international unit, at the expense of the taxpayer, to make up the shortfall.

TEPCO Forests Australia Pty Ltd expressed a view on the Government's decision not to host JI projects for abatement that occurs before the Scheme begins. TEPCO argued that the Government should credit early action by recognising forestry projects undertaken prior to the commencement of the Scheme through the JI mechanism.

Hosting JI projects for abatement before the Scheme begins would require the design and implementation of administrative arrangements that are likely to require considerable government and private resources. The approach to crediting such abatement would have to be consistent with the approach to crediting early action more generally. Given the limited scope for abatement before Scheme commencement, the potential benefits do not justify the additional administrative burden.

Another issue is additionality. Two factors would make passing an additionality test difficult. First, projects that go ahead without a commitment from the Government on JI might not satisfy additionality requirements. Second, projects in sectors that will be subject to coverage in the near future might not be considered additional, if it was financially beneficial to prepare in advance for the Scheme.

Because of the challenges of developing consistent methodologies and proving additionality, the Government will not establish a program for allocating early action credits. This precludes recognition of forestry projects that occur before the start of the Scheme through hosting JI.

## Policy position 11.13

Australia will not host JI projects in sectors that are covered by the Scheme.

Decisions on JI projects in uncovered activities will be aligned with decisions on domestic offsets.

The Scheme will not include JI projects from agricultural emissions during the period before a decision about coverage of that sector's emissions.

A decision on the scope for offsets and JI projects relating to sources of emissions that cannot be included in the Scheme will be made in 2013.

In 2013, the Government will consider the scope for offsets and JI projects in sectors that cannot be included in the Scheme.

Australia will not host JI projects before the start of the Scheme.

## 11.6 Future linking arrangements

It would be in Australia's best interests not to restrict links with international carbon markets that are underpinned by an effective global constraint on emissions. As international carbon markets mature, many of the current limitations of linking are likely to be overcome. Similarly, as the Australian Scheme matures it will be important that entities have access to a range of abatement opportunities so that they can best manage their costs.

Choices about the nature and extent of international linkages are likely to change over time. The Green Paper canvassed the issues for consideration when deciding future linking arrangements.

#### **Green Paper position**

Linking arrangements would be reviewed in the light of ongoing international negotiations and market development, and restrictions on linking with credible schemes and mechanisms would be relaxed as the Australian scheme matures.

There should be the maximum feasible level of certainty about future linking arrangements, consistent with retaining enough flexibility to respond to changing international arrangements.

Future linking arrangements would be determined and announced in conjunction with decisions on the national trajectory and scheme caps.

Stakeholders generally supported the Green Paper position that linking arrangements be subject to review. For example, Westpac stated that it 'recognises the need to minimise added complexity and volatility by avoiding direct linking to existing international markets in the early stages of the scheme's operation, with a long-term view to reviewing linking opportunities in the future' (Submission 695, p. 8).

There was widespread support for relaxing restrictions on linking with credible schemes and greater global integration. Chevron Australia (Submission 716, p. 28) supported linking the Scheme to international markets and agreed that restrictions on international linkages should only be considered where there were real threats to the stability and ongoing credibility of the Scheme.

Furthermore, there was an understanding that any decision about future linking should take international developments into consideration. For example, the Asia–Pacific Emissions Trading Forum stated that, in the context of linking policy, it is 'vitally important that Australia's emissions reduction policy be attuned to, and promote, international efforts' (Submission 904, p.2).

Some stakeholders agreed with the Garnaut Final Report that international linking should be sought in a judicious and calibrated manner.<sup>14</sup> In a joint submission, the energy industry stated that 'any linking to other permit markets should proceed with caution, noting the risk that unintended exposure may place undesirable and unnecessary upward pressure on Australian permit prices' (Submission 715, p. 17).

In the Government's view, future decisions about linking need to be guided by the overall objective of the Scheme: to meet Australia's emissions reduction targets in a cost-effective way that supports an effective global response to climate change. To this end, future international links will be considered only where they are consistent with the objectives of the Scheme, including consistency with Australia's international objectives.

The Garnaut Final Report maintained that linking opportunities should be assessed by an independent authority.<sup>15</sup> The Government sees the merit of independent advice on linking arrangements. Therefore, the effect of, and potential for enhancing international linking will be covered by the Scheme's strategic reviews, which will be undertaken by the independent advisory committee. In addition, the Government, through the responsible minister, may at any time establish an independent review to consider potential linking opportunities. However, the Government will make all final decisions about future linking arrangements, which in some cases might not require independent advice.

Stakeholders supported the Government's proposal to provide medium-term policy certainty over linking arrangements. However, the Government also needs to retain flexibility over linking arrangements to ensure that they are consistent with evolving international obligations and objectives. Like Scheme caps, future linking arrangements will have implications for the operation of the market and the permit price. There are strong arguments for aligning linking decisions with decisions on Scheme caps.

More importantly, the nature of future international markets and the extent to which the Australian Scheme can be linked with other schemes will influence Australia's decisions on the national trajectory. Linking to an effective global market will ensure that the cheapest abatement opportunities are pursued first, reducing mitigation costs and allowing for deeper reductions in emissions for the same expenditure of resources. Therefore, there is a strong argument for determining and announcing future linking decisions with decisions on the national trajectory.

### Policy position 11.14

Linking arrangements will be subject to review in the light of ongoing international negotiations and market development. The Government's policy intent is to relax restrictions on linking with credible schemes and mechanisms as the Australian Scheme matures.

Future international links will be considered only where they are consistent with the objective of the Scheme, which will include consistency with Australia's international objectives.

The effect of, and potential for, enhancing international linking will be covered by the Scheme's strategic reviews, which will be undertaken by the independent advisory committee. In addition, the Government may at any time establish an independent review to consider potential linking opportunities.

The Government will provide the maximum feasible level of certainty about future linking arrangements, consistent with retaining enough flexibility to respond to changing international arrangements.

Future linking arrangements will be determined and announced in conjunction with decisions on the national trajectory and Scheme caps.

# 11.6.1 Establishing bilateral links with the Schemes of other countries and regions

It is open to Australia to pursue bilateral links with other emissions trading schemes through unilateral or bilateral acceptance of compliance units from other countries' or regions' schemes for compliance in the Australian Scheme.

Australia might wish to establish a bilateral link to increase the pool of abatement opportunities for liable entities, to increase liquidity and to build international cooperation on emissions trading. For example, a link between the Australian Scheme and the New Zealand scheme would reduce compliance costs for trans-Tasman businesses and also offer potential opportunities for sharing governance arrangements and technical resources (for example, auditors and accreditation resources).

The Green Paper canvassed the possibility of the Scheme linking bilaterally to the schemes of other countries and regions.

#### **Green Paper position**

The Government would investigate, on a case-by-case basis, direct bilateral linking opportunities (including mutual recognition of compliance units and harmonisation) with the schemes of other countries, after the Australian scheme has been established.

Many stakeholder submissions commented on potential future bilateral links. For example, several stakeholders encouraged consideration of deeper integration with the New Zealand scheme. Like the Garnaut Final Report, many stakeholders considered that Papua New

Guinea and Indonesia present important future linking opportunities. The Garnaut Final Report (p. 340) noted that:

Building a regional market that encompasses (in the first instance) Papua New Guinea, other south-west Pacific developing countries, and—with greater difficulty and in the context of involvement by other developed countries—Indonesia, would also be desirable. Papua New Guinea and Indonesia have large opportunities to reduce land-use change and forestry emissions and to quickly replace coal (Indonesia) and petroleum with low-emissions fuels.<sup>16</sup>

The Australian Council of Superannuation Investors and Australian Institute of Superannuation Trustees highlighted the potential for regional linking to provide sustainable development opportunities that could improve the livelihoods of some of Australia's neighbours (Submission 628, p. 6).

The Australian Government is engaging with other countries who are also implementing emissions trading schemes to minimise potential barriers to future linking, including through bilateral engagement and the International Carbon Action Partnership (see Box 11.1).

#### **Box 11.1: International Carbon Action Partnership**

The International Carbon Action Partnership (ICAP) is made up of countries and regions that have implemented or are actively pursuing the implementation of carbon markets through mandatory cap and trade schemes. The partnership provides a forum to share experiences and knowledge. Sharing and evaluating best practices will help ICAP members determine the extent to which their respective programs can be supported by and benefit from the ICAP process and will help to ensure the future linkability of schemes.

The Government believes that future bilateral links should only be with schemes that are of a suitable standard. The suitability of schemes will be assessed on a range of criteria, including:

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

Linking arrangements would also need to be consistent with Australia's international obligations.

In considering bilateral links, the Government must also take into account the impact on the Scheme and domestic participants. As the Garnaut Final Report noted:

Linking, and any resulting changes, would have a fundamental impact on the effect of the emissions limit under the scheme, and on the functioning of the scheme. Therefore, advance notice of new links should be provided in the same way, and with the same five years' notice, as a move to a different emissions reduction trajectory.<sup>17</sup>

However, Australia may wish to establish a bilateral link with another country's scheme to enhance liquidity and to build international cooperation on emissions trading. Where this is not expected to have a significant impact on the permit price (where both schemes are importing the international price), it would not make sense to delay the establishment of the link for, say, a notice period of five years. Such a link would provide benefits in reduced transaction costs but have little implication for the price in the Scheme or the value of permits. As discussed earlier, the Australian Scheme and the New Zealand scheme are likely to have compatible design characteristics, so establishing a bilateral link would not be expected to have a significant impact on the permit price.

The Government will give Scheme participants maximum feasible certainty about future linking arrangements, consistent with retaining enough flexibility to respond to changing international arrangements. As for other changes to Scheme features, the Government will provide at least five years notice of the establishment of a new bilateral link, except where:

- an independent review, including stakeholder consultation, finds that establishing a bilateral link with another country will not have a significant impact on the permit price in the Scheme
- the responsible minister decides to waive or shorten the notice period.

If Australia were to link with another country's scheme, it would also indirectly link to all other schemes to which that scheme is linked. The Garnaut Final Report<sup>18</sup> noted that:

If Australia were considering linking to one market, which was itself linked to a third market, Australia would have legitimate reasons not to link to the second market if the rules governing the third market were not acceptable.

In assessing whether to link, the Government will take into account any existing links of the other Scheme.

## Policy position 11.15

Direct bilateral linking opportunities, including mutual recognition of compliance units and harmonisation with the schemes of other countries and regions, will be considered on a case-by-case basis after the Scheme has been established.

Future bilateral links would only be consider with schemes that are of a suitable standard, based on a range of criteria including:

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

In deciding whether to link bilaterally, the Government will take into account existing indirect links.

A minimum of five years' notice will be given before a bilateral link with another country's Scheme is established, except where:

- an independent review, including stakeholder consultation, finds that establishing the link will not have a significant impact on the permit price in the Scheme
- the responsible minister decides to waive or shorten the notice period.

## 11.6.2 Implications of Scheme design for future linking opportunities

In general, future linking decisions are likely to be influenced by technical and strategic considerations. The environmental credibility of the Scheme to which the link is being contemplated will be particularly important. A minimum technical requirement is that eligible compliance permits within the Scheme are underpinned by robust and credible emissions monitoring, reporting and verification, compliance, and enforcement mechanisms. Also important is the credibility of the Scheme cap—that is, whether it contributes to the development of an effective global response to climate change. Other aspects of Scheme design could also influence the linking decision.

In assessing future linking arrangements, the Garnaut Final Report found that it would be important to consider whether the market proposed for linking with the Australian Scheme is compatible:

Both [markets] need to have firm and mutually acceptable levels of mitigation ambitions. Both need to have adequate monitoring and enforcement mechanisms. And they need to have compatible market rules—for example, on the unit of emissions, and possibly on lending and hoarding.<sup>19</sup>

Some stakeholders considered that some aspects of the Scheme design could potentially limit or restrict future linking opportunities; for example, that the price cap is potentially inconsistent with linking. Some also had reservations about linking to a broad coverage scheme.

It is important to note, when considering the implications of Scheme compatibility and their implications for linking that:

- where a link is made with another country that also has a binding commitment under the international architecture, trades between the domestic schemes can be backed by international units and recognised under the international architecture. In which case, the detailed design characteristic of the different domestic schemes is less important
- some design features (such as the price cap) could mean that establishing a link with another scheme could transfer risk to the Australian taxpayer
- some design elements do not pose a technical barrier to establishing a link to another scheme, but may be perceived to be a barrier to linking.

The various aspects of scheme compatibility and their implications for linking are considered below.

## Scheme caps

The credibility of the other Scheme's cap is critical to the decision to link. The Government prefers open trade within an effective global constraint. Links to other schemes should promote such a constraint and be consistent with an effective global response to climate change.

Australia's strong international negotiating position on the need for significant cuts in global emissions could be undermined if it were to link to a scheme in a developed country that had only very weak emissions constraints. In some circumstances, however, even weak emissions constraints could represent important progress towards an effective global response, in which case linking might be consistent with Australia's international position.

Where both Australia and the other country are parties to an international agreement that provides a binding constraint, the credibility of that constraint is more important than the other country's scheme cap, as long as it meets its international obligations. Australia could confidently link with the other scheme, as long as trades were recognised under the international agreement. For example, if Australia were to link to the scheme of another country that had a binding target under the Kyoto Protocol, the other country's scheme cap would not matter, as long as all units imported from its scheme were backed by Kyoto units.

#### Ability to contribute to Australia's international objectives

Because Australia's Scheme cap is designed to ensure compliance with the Kyoto Protocol target, it is important that exchanges of domestic permits are backed by transfers of Kyoto units. For example, if an Australian permit were transferred to a New Zealand entity for use in the New Zealand scheme, the Australian Government would need to transfer a Kyoto unit to the New Zealand Government. Transfers of allowances within the European Union scheme are shadowed in this way, with transfers of assigned amount units at the country level. The European Union scheme has also linked with Norway using this approach.

#### Price cap

As discussed in Chapter 8, the Australian Scheme will include a price cap that will set the maximum cost of compliance under the Scheme. If the price of permits rises beyond the price cap, a liable entity would access the unlimited store of permits and pay the price cap rather than buy a permit from the market.

Some stakeholders are concerned that the price cap will restrict linking. Technically, the price cap is not a barrier to linking; the Scheme can still link by recognising the units of the other country for compliance. Also, a price cap has no impact on unilateral links. For example, the Australian Scheme will link unilaterally to the Kyoto Protocol's flexibility mechanisms by allowing liable entities to use eligible Kyoto units for compliance.

If another country were to link to Australia while the price cap was in place, the price cap would effectively function to cap permit prices across both emissions trading schemes. If the permit price in the other country's scheme moved above the price cap, Australian permits would be exported and Australian liable entities would access the price cap. The permit price in the other scheme would converge with the price cap level in the Australian Scheme (as long as the market conditions did not require more than all of Australia's permits to be exported for price parity).

Accessing the price cap effectively loosens the Australian Scheme cap. Australia would have to buy additional Kyoto units from the international market to meet its international obligations (at a higher price than the price cap, except where the Government has access to lower cost international units that are not accepted under the Scheme). Effectively, foreign entities would be able to access the price cap at the expense of the Australian taxpayer. For this reason, while the price cap is in place, the Government will need to carefully assess any potential bilateral link to assess whether the link might lead to the price cap being accessed.

This does not necessarily rule out bilateral links being established while the price cap is in place. For example, if the price in the other scheme were below or equal to the price in Australia, the risk of the price cap being accessed would be low. However, the bilateral link would be problematic if the other scheme allowed for the export of permits to a third scheme and that scheme's price cap were higher than the Australian price cap. For example, while establishing a bilateral link to New Zealand might not be expected to have a price impact, the capacity to export from the New Zealand scheme would potentially rule out a bilateral link while the price cap is in place.

Some potential linking partners, such as the European Union, have indicated that they will not link with a scheme that has a price cap. Their reservations are twofold. First, when one country links to a scheme that has a price cap, it must be confident that the other country will meet its international obligations by purchasing additional international units. If that country does not do so, the credibility of both countries' schemes will be undermined. Second, the country with the price cap may be concerned that, should its price cap be accessed, its scheme would be importing an artificially low permit price, undermining the incentive for efficient investment and behaviour.
## **Banking and borrowing**

Other aspects of Scheme design could also affect linking, such as whether the Scheme being linked to includes similar banking and borrowing provisions. Linking would make such features available to liable entities in both schemes. This could be contrary to the Government's intentions and might be a reason to defer linking.

Unlimited banking of carbon pollution permits will be allowed under the Australian Scheme. Banking allows permits to be set aside for use in future years. This reduces emissions in the current year while increasing future allowable emissions. An entity operating in a scheme that does not allow banking would be able to bank through a third party in a linked scheme that allow banking (for example, using a contract that would swap existing permits for permits in the subsequent period). This could lead to a concentration of banking in the country that allows it.<sup>20</sup>

Borrowing allows permits from future year caps to be brought forward for surrender in the current year. This reduces allowable emissions in future years while increasing current year emissions.

The Australian Scheme will only allow limited borrowing from future periods. Liable entities will be able to discharge up to a certain percentage (5 per cent) of their obligations by surrendering carbon pollution permits dated from the following year. Linking with a scheme that allows for larger scale borrowing will need to be approached with caution, as that would effectively allow for larger scale borrowing in the Australian Scheme.

As discussed in Chapter 8, various risks are associated with larger scale borrowing. For example, delayed mitigation measures might not be undertaken in a future period, the scheme being linked to might not meet its future international obligations, or its borrowing arrangements might not be credible or might be altered in the future.

Long-term borrowing is not currently allowed in the international architecture. Countries with a Kyoto Protocol target could find it difficult to manage a domestic scheme that includes large-scale borrowing. However, many existing schemes and proposals to date have not allowed for long-term borrowing. If long-term borrowing is allowed under the international climate change framework, that could lead to significant and potentially detrimental delays in the global abatement effort.

## Coverage and permit allocation

The Australian Scheme will have broad coverage to increase opportunities for low-cost emissions reductions and to ensure that the cost of achieving those reductions is shared equitably across the economy (see Chapter 6). Other schemes, such as the European Union scheme, have a narrower coverage of emissions sources and gases.

The Australian Scheme will auction most permits and allocate some directly to particular activities to address specific policy concerns. Other schemes might allocate permits on a different basis (for example, based on historical emissions).

Although different approaches to coverage and permit allocation do not pose a technical impediment to linking, there may be sensitivities regarding competitiveness, if an industry is not treated in the same way by all countries.

A linking arrangement in which one or more gases or categories of sources are included in one scheme but not in the other raises questions about competitiveness. A competitive advantage could be perceived if a given sector is subject to an emissions constraint in only one scheme. Similarly, a competitive advantage could be perceived if an activity receives an administrative allocation of permits under one scheme but not the other. However, competitive disadvantages and possible discrimination from the different treatment of a sector in two schemes are not caused by linking and would also occur in its absence.<sup>21</sup>

Some authorities have expressed concern about the coverage of certain sectors, particularly where it is not possible to measure emissions from a sector with a high degree of certainty. Linking to a scheme that covers such sectors could be perceived as undermining the environmental integrity of the other scheme. This question essentially comes down to the accuracy of monitoring, reporting and verification systems, and confidence in them. That said this concern is not relevant if a government is prepared to back its scheme by internationally recognised units (that is Kyoto units).

## Monitoring, reporting and verification

A crucial consideration when assessing the viability of a link is the legitimacy of the trading unit. Linking partners must be confident that 'a tonne is a tonne' in both schemes. If permits from another country's scheme are accepted for compliance purposes under the Australian Scheme, the Government needs to be certain that the other country's permits each truly represent one tonne of  $CO_2$ -e. Otherwise, the environmental integrity of the Australian Scheme could be compromised.

To maintain the legitimacy of the trading unit, equivalent standards of monitoring, reporting and verification are required. Systematic under-reporting or inaccurate measuring in one system would lower the environmental effectiveness of both schemes, since 'false reductions' will be imported across the linked systems.<sup>22</sup>

However, different but equally valid approaches to monitoring, reporting and verification are possible. Different systems would not present a barrier to linking as long as their schemes are robust and have integrity.

Authorities linking schemes must be assured that a minimum level of integrity is retained through similarly strict and unwavering compliance and enforcement measures.

The Kyoto Protocol provides assurances that each Kyoto unit is equivalent to 1 tonne of  $CO_2$ -e. The Protocol is underpinned by robust monitoring, reporting and verification. Countries with a binding target must monitor and report their emissions according to an internationally agreed framework. The framework also establishes a robust verification process that independently scrutinises and verifies the monitoring and reporting efforts of each country.

Therefore, as long as trade with another scheme is backed by the transfer of Kyoto units, the Australian Government can be confident of the integrity of the unit of trade.

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- 11 Only an amount equivalent to 2.5 per cent of Australia's assigned amount for each type of unit can be carried over.
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