A5.1 Greenhouse Gas Emission Reduction Policies in Australia

There are a large number of policies in place in Australia designed to address the issue of emission of greenhouse gases in the generation of electricity. Some are national, but many more are State based policies. This Appendix provides an overview of both current and proposed greenhouse policies in Australia.

The policies are of various types. Some are market based policies, where market participants choose the least cost means of meeting legislated targets of emissions reductions. Others are policies aimed at promoting a particular type of fuel to generate electricity, such as renewables or natural gas. The aim of these policies is to produce lower levels of greenhouse gas emissions than is produced from current coal-fired generation plants.

A third type of policy is the provision of funding to facilitate research and development and deployment of technologies that will reduce greenhouse gas emissions.

As noted above, the market based policies are based on legislated targets of emission reduction. The following section outlines the targets announced by the Commonwealth and State Governments.

Targets for Reduction of Greenhouse Gases

NSW committed to greenhouse gas emission targets in June 2005. The NSW targets are:

- a 60 per cent reduction on 2000 levels by 2050, and
- a return to 2000 levels by 2025.

The Commonwealth Government has committed to the introduction of a national emissions trading scheme. Once in place, the long run target, and annual caps, that the Commonwealth Government defines for the national scheme will also become the targets for all States and Territories.
Other jurisdictions have adopted similar long-term targets and these are detailed in Table 5.1.1. Further, First Ministers of all States and Territories have agreed through the Council of Australian Federation that ‘a national emission trading scheme should place Australia on a path towards achieving a 60 per cent cut in national emission by 2050 compared to 2000 levels’1 These targets are broadly in line with the targets adopted overseas (See Table 5.2.1 in Appendix 5.2).

The Commonwealth Government has not yet adopted a target for reducing greenhouse gas emissions. As part of Australia’s Climate Change Policy, the Commonwealth Government has indicated that it will set a long-term aspirational goal in 2008 and short-term caps for an emission trading scheme in 2010.

Most Australian jurisdictions have introduced legislation which targets the level of electricity consumption to be met by renewable energy sources. The States’ renewables targets are much higher than the Commonwealth’s as can be seen in Table 5.1.1. The Commonwealth requires renewable forms of energy to provide an additional 2 per cent of the nation’s electricity generation capacity by 2010, while New South Wales has a 10 per cent total renewable target in 2010 rising to 15 per cent by 2015. Queensland has also introduced a target to produce 18 per cent of its electricity from natural gas. Table 5.1.1 summarises the targets for greenhouse gas reduction and for renewables and other lower emission fuels that have been introduced in Australia.

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1 All First Ministers adopted this target at the Council for the Australian Federation (CAF) meeting on 12 April 2007 in Canberra. See p3 of corresponding communiqué.
Table 5.1.1: Greenhouse gas reduction and renewable/low emission targets, by Australian Jurisdiction

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Long-term (2050) economy-wide targets</th>
<th>Intermediate economy-wide targets</th>
<th>Renewable or low emission targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commonwealth Government</td>
<td>No policy. (To be announced in 2008.)</td>
<td>Annual caps for period up to 2020 for an emission trading scheme to be announced in 2010.</td>
<td>2% extra renewable energy target by 2010 (legislated)</td>
</tr>
<tr>
<td>New South Wales</td>
<td>60% reduction on 2000 levels</td>
<td>Return to 2000 levels by 2025</td>
<td>10% renewable energy target by 2010 and 15% by 2020</td>
</tr>
<tr>
<td>Victoria</td>
<td>60% reduction on 2000 levels</td>
<td></td>
<td>10% renewable energy target by 2016 (legislated)</td>
</tr>
<tr>
<td>Queensland</td>
<td>60% reduction on 2000 levels</td>
<td></td>
<td>18% gas generation by 2020 and 10% low emission target by 2020</td>
</tr>
<tr>
<td>South Australia</td>
<td>60% reduction on 1990 levels (legislated)</td>
<td></td>
<td>20% renewable energy target by 2014 (legislated)</td>
</tr>
<tr>
<td>Western Australia</td>
<td>60% reduction on 2000 levels</td>
<td></td>
<td>15% renewable energy target by 2020 and 20% by 2025</td>
</tr>
<tr>
<td>Tasmania</td>
<td>60% reduction on 2000 levels</td>
<td>Return to 2000 levels by 2025</td>
<td>Implement a renewable energy target in line with NSW.</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>60% reduction on 2000 levels</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Policies Aimed at Meeting Emission Targets

The announced emission targets are substantial and will require the implementation of well designed policies if they are to be achieved. Government policies designed to reduce greenhouse gas emissions are of three main types – market based approaches, such as emissions trading schemes, policies promoting low emission forms of energy, and funding programs. The following section outlines the major policies currently implemented or being developed in Australia.

Market based policies

There is one market based policy currently implemented in Australia which aims to reduce greenhouse gas emissions, the NSW Greenhouse Gas Reduction Scheme (GGAS).
A national emissions trading scheme will be established in Australia, no later than 2012. This will replace GGAS. The background to the establishment of a national emission trading scheme is as follows:


- The Prime Minister’s Task Group on Emissions Trading (PM’s Task Group) was formed in December 2006 and reported on 1 June 2007. Its design largely followed the proposals of the NETT. Its work is described below.

- The Commonwealth Government formally responded to the PM’s Task Group report on 17 July 2007 when it issued *Australia’s Climate Change Policy*. Through this policy the Commonwealth endorsed the need for an emission trading scheme as the primary mechanism for achieving greenhouse gas reductions in Australia. This policy also endorsed the key design features of the emission trading system set out in the PM’s Task Group report. These key features are described in Chapter 5.

(i) **NSW Greenhouse Gas Reduction Scheme (GGAS)**

The NSW Greenhouse Gas Reduction Scheme (GGAS) was one of the first mandatory greenhouse gas emissions trading schemes in the world. GGAS started operating in January 2003. Since that time, it has created the second largest mandatory carbon market in the world.

GGAS aims to reduce greenhouse gas emissions associated with the production and use of electricity and to encourage participation in abatement projects, that is, activities to offset the production of greenhouse gas emissions, such as reafforestation.

GGAS places responsibility on retailers and wholesale market customers to reduce emissions associated with electricity used in New South Wales and the Australian Capital Territory.

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5 Including some generators acting as retailers. Large users of electricity can also elect to take responsibility to reduce the greenhouse gas emissions associated with their electricity use, in lieu of their retailer.
GGAS provides certainty to markets by introducing a price signal for greenhouse gas emission abatement across the National Electricity Market (NEM). GGAS reduces greenhouse gas emissions by providing a financial incentive for lower emission generators and abatement projects. Since the scheme began in 2003, the total number of all abatement certificates surrendered to meet obligations is equivalent to about 30.5 million tonnes of carbon dioxide equivalent. Because it is a state-based scheme embedded in the NEM, GGAS allows the low emission generators and abatement projects to occur in New South Wales, Queensland, Victoria, South Australia, Tasmania and the Australian Capital Territory.

Unlike some other greenhouse gas emissions trading schemes - such as the European Union Emission Trading Scheme (EU ETS) and the proposed National Emission Trading Scheme (NETS) - GGAS is a baseline and credit scheme. As most liable parties do not directly emit greenhouse gases from electricity production, their attributable emissions are calculated from an emissions baseline.

GGAS establishes annual state-wide greenhouse gas benchmarks for the NSW electricity sector. It requires liable parties (called Benchmark Participants) to meet their allocation of the mandatory greenhouse gas benchmark, based on their share of the NSW electricity demand.

Liable parties reduce emissions relative to the baseline by creating or purchasing credits (called NSW/ACT Greenhouse Abatement Certificates or NGACs) from abatement projects. Such projects include:

- low-emission generation of electricity (including cogeneration) or improvements in emission intensity of existing generation activities
- activities that result in reduced consumption of electricity
- activities that reduce on-site emissions not directly related to electricity consumption
- the capture of carbon from the atmosphere in forests.

A Benchmark Participant pays a financial penalty if it fails to surrender enough abatement certificates to meet their mandatory benchmark. Currently the penalty level is set at $12 per tonne of shortfall (pre-tax, effective for the 2007 compliance year).

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The NSW Independent Pricing and Regulatory Tribunal (IPART) administers the GGAS and is also the NSW Compliance Regulator. More detailed information on GGAS is available from the GGAS website: http://www.greenhousegas.nsw.gov.au.

NSW policy is for GGAS to end once a national emissions trading scheme is implemented. This will require appropriate transitional measures.

(ii) National Emissions Trading Scheme (NETS)

In January 2004, First Ministers of State and Territory Governments established a working group of senior officials to develop a model for a national emission trading scheme. With its experience establishing GGAS, the NSW Government led the work on developing the NETS.

In December 2004, the senior officials, now known as the National Emissions Trading Taskforce (NETT) reported key design elements. In August 2006, the NETT published a detailed discussion paper on the Possible Design for a National Greenhouse Gas Emissions Trading Scheme. The Commonwealth was invited to participate in this process. Key features of the proposed NETS include:

- Use of a Cap and Trade mechanism, with permit issue limited to annual targets. Firm targets would be set for the first 10 years and a range or ‘gateway’ of targets for the next 10 years
- Start from 2010 and remain in place for at least 20 years
- Based on the electricity sector initially, with expansion to the rest of the stationary energy sector from 2015. Note that since the Discussion Paper the NETT is now considering broader scheme coverage. In addition to electricity generation and other stationary energy – fugitive emissions, industrial process emissions, transport and possibly waste are all being considered
- Transitional compensation (free permits) to disadvantaged generators (e.g. coal plant)
- Compensation (free permits) to trade-exposed energy intensive, industries (e.g. aluminium smelters) until overseas competitors face similar carbon prices
- Auction of remaining permits with proceeds to go to jurisdictions.

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The Discussion Paper proposed two long-term targets for the electricity sector for 2030 under three indicative scenarios\(^8\):

- **Scenario 1**: 176 Mt (equal to emission levels in 2000)
- **Scenario 1a**: 176 Mt (Scenario 1), plus large-scale exogenous energy efficiency programs
- **Scenario 2**: 150 Mt (equal to emission levels in 1997)

These targets were chosen to generally place the electricity generation sector on a path to achieving a 60 per cent reduction on 2000 levels by 2050.

Under these scenarios, modelling indicates that permit prices at the start of the scheme will lie within a range of $5 to $12/tCO\(_2\), depending on the scenario. The permit price is forecast to rise to between $15 and $30/tCO\(_2\) by 2020 and peak at up to $35/tCO\(_2\).

In February 2007, the Council for the Australian Federation (CAF) comprising First Ministers from all States and Territories called on the Commonwealth Government to introduce an emissions trading scheme in collaboration with the States and Territories, otherwise the States and Territories would introduce it themselves by the end of 2010.

Approximately 120 submissions on the Discussion Paper were received from a diverse range of stakeholders and were generally very supportive. The most common comments were that the scheme should include broader coverage and that it would be beneficial to secure Commonwealth Government involvement. There were also requests to examine more stringent caps than appeared in the Discussion Paper.

The NETT has continued to refine the scheme design during 2007 and anticipates publishing a final report later in 2007. This report may recommend the expanded scheme coverage described above and may contain modelling to take this expanded coverage into account.

Further information on the NETS is available at [www.emissionstrading.net.au](http://www.emissionstrading.net.au).

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\(^8\) NETT, op.cit
(iii) Prime Minister’s Task Group on Emissions Trading and Australia’s Climate Change Policy

The report of the Prime Minister’s Task Group on Emissions Trading was released on 1 June 2007. The PM’s Task Group agreed that a national emissions trading scheme was appropriate for Australia. The Commonwealth Government formally responded to the PM’s Task Group report on 17 July 2007 when it issued Australia’s Climate Change Policy. Through this policy the Commonwealth endorsed the need for an emission trading scheme as the primary mechanism for achieving greenhouse gas reductions in Australia.

This policy also endorsed the key design features of the emission trading system set out in the PM’s Task Group report. These key features are described in Chapter 5.

The PM’s Task Group was asked to advise on the nature and design of a workable global emissions trading system in which Australia would be able to participate. This allowed consideration of a domestic emissions trading scheme that might operate in advance of a truly global arrangement.

The PM’s Task Group was chaired by the Secretary of the Department of Prime Minister and Cabinet. Its members included representatives from Commonwealth departments such as Treasury, Environment and Heritage, Foreign Affairs and Trade, and Industry, Tourism and Resources, as well as major companies including Xstrata, International Power, Australian Pipeline Trust, Qantas, BHP Billiton, Alumina and the National Australia Bank. There were no representatives from the States and Territories. The PM’s Task Group’s terms of reference did not require it to have regard to the work of the NETT.

The design framework outlined in the report is very similar to that developed by the States and Territories NETS process. The PM’s Task Group recommended that Australia should not wait until a global agreement has been reached on emissions reductions, but implement a domestic emissions trading scheme in 2011 or 2012 at the latest. Major features of the recommended design framework which parallel the NETS approach include:

- Endorsement of a cap and trade style emissions trading scheme
- Broad scheme coverage, including all major greenhouse emitting sectors except for agriculture and land use
- The need for a long term target – though the PM’s Task Group recommends that it be ‘aspirational’ and not set until 2008.
- The need for firm annual caps in the first ten years and indicative medium term ranges (or gateways) in the following ten years.
Although the PM’s Task Group report broadly follows the key design features of the NETS, there are some points of differentiation. The most important of these include:

- **Long-term targets are aspirational only**: the PM’s Task Group report has made no comment on what the long term aspirational target should be. The Commonwealth Government has stated that these will be set in 2008.

- **Complementary measures**: both the PM’s Task Group report and the NETS recognise the role of various complementary policies. However, the Task Group report does not support renewable energy targets. In fact, it questions the role of schemes that have already been legislated, such as VRET and recommends that schemes which have been announced but not yet legislated, such as NRET, should not proceed. Since the publication of the PM’s Task Group report, the States have reaffirmed their commitment to their respective renewable and low emission targets. Queensland has announced that its 13 per cent target for gas-fired generation will be increased to 18 per cent.

### Renewable and Low Emission Energy Targets

The Commonwealth introduced the Mandatory Renewable Energy Target (MRET) in April 2001. Since then several States have introduced similar schemes based on legislated targets for the contribution to electricity supply by renewable energy sources. These renewable targets may increase electricity prices as a certain percentage of electricity consumption will need to be met by more expensive renewable sources (principally wind).

The rationale for these schemes is one of industry development for an interim period (until approximately 2030). Under an emissions trading scheme, the carbon price in early years may not be sufficient to drive large-scale deployment of renewable energy technologies. Renewable energy targets are used to accelerate this development and ensure that new technologies are available for when deep cuts are required in later years.

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9 Actual targets are expressed as a fixed GWh target in each year. The Commonwealth target applies Australia wide. State targets are additional, but are applied in that State. A project cannot claim credits under both Commonwealth and State schemes, for the same generation.
Commonwealth Mandatory Renewable Energy Target (MRET)

For electricity, the Commonwealth’s major greenhouse program is the Mandatory Renewable Energy Target (MRET or the 2 per cent Renewable scheme), which requires electricity retailers to purchase around 9500 GWh of extra renewable electricity per year by 2010 through to 2020.

MRET is described as having two purposes – to encourage investment in renewable energy technologies and to reduce greenhouse gas emissions. The quota of renewable energy projects required by MRET has now been met, so no further investment will be driven by the scheme.10

NSW Renewable Energy Target (NRET)

On 9 November 2006, the Premier announced mandatory renewable energy targets for NSW. The New South Wales Renewable Energy Target (NRET) will require 10 per cent of electricity consumed in NSW by 2010 to come from renewable energy sources in the NEM. By 2020, the figure will rise to 15 per cent and remain at this level until 2030. Of the total electricity from the NEM consumed in NSW, 6 per cent is currently sourced from renewable energy, predominantly from the Snowy hydro scheme.

In order to create an incentive to use renewable energy, electricity retailers who fail to reach the targets will face a penalty set at a level higher than the cost of purchasing renewable energy certificates. The legislation implementing NRET was introduced into the NSW Parliament on 27 June 2007 in anticipation of the scheme starting on 1 January 2008.

It is intended that the NRET design mirrors that of the Victorian scheme discussed below.11

Victorian Renewable Energy Target (VRET)

Victoria was the first State to announce a State-based target. The Victorian Renewable Energy Target (VRET) requires 10 percent of the electricity consumed in Victoria to come from renewable sources in Victoria by 2016. At present, renewables contribute around 4 per cent of Victorian electricity.

VRET commenced on 1 January 2007 and is legislated to operate until 2030.12

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11 It is intended that the NRET design mirrors that of the Victorian scheme discussed below.
12 Further information on the VRET is available at 222.esc.vic.gov.au/public/VRET.
Queensland Gas Scheme and Renewable and Low Emissions Energy Target

The Queensland Gas Scheme commenced on 1 January 2005 and will operate for 15 years. It provides incentives to build new gas-fired generation capacity by requiring a certain proportion of Queensland’s electricity supply to be sourced from gas-fired generation. Eligible fuels are natural gas, coal seam gas (including waste coal mine gas), liquefied petroleum gas and waste gases associated with conventional petroleum refining.

In June 2007 the Queensland Government announced a new package of greenhouse measures. This includes reiterating the long-term 2050 target of a 60 per cent reduction on 2000 levels. To achieve this, the previous 13 per cent target for the Queensland Gas Scheme will be increased to a target of 18 per cent by 2020.13

In addition, a new 10 per cent renewable and low emissions energy (which will include “clean coal”) target by 2020 has also been announced.

Australian Capital Territory Climate Change Strategy

The ACT Climate Change Strategy sets a target of a reduction by 60 per cent of 2000 emissions by 2050, with an interim milestone of limiting 2025 emissions to 2000 levels. The strategy includes a range of programmes targeting greenhouse gas reduction including a renewable energy target similar to the recently announced NSW renewable target.14

Western Australian Climate Change Action Statement

In May 2007, the Premier of Western Australian announced a Climate Change Action Statement.15 This includes:

- an aspirational 50 per cent Cleaner Energy Target (CET) for the South West Interconnected System (SWIS) by 2010 and 60 per cent by 2020. This includes gas and renewable energy generation.

- renewable energy targets of 15 per cent by 2020 and 20 per cent by 2025 for the SWIS.

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13 Further information on the Queensland Gas Scheme is available at www.energy.qld.gov.au/13 percentgas.cfm
South Australian Climate Change and Greenhouse Emission Targets

South Australia has legislated\(^\text{16}\) an economy wide goal of a 60 per cent reduction on 1990 levels by 2050, and has a renewable energy target of 20 per cent by 2014.\(^\text{17}\)

Funding for research, development and deployment of low emissions technologies

In addition to market based approaches, such as emissions trading schemes, and regulatory approaches, such as legislated targets for renewables and low emissions technologies, a third type of government policy – funding specific types of projects - has been widely used in Australia to address greenhouse gas emissions.

Many Australian governments provide funding for the research, development and deployment of low emission technologies, including renewable sources of energy and energy savings. The aim is to facilitate the entry of low emissions technologies into the market place in situations where the uptake of such technologies may not be high. These types of funding programs are common and have been used by many Governments, both within Australia and overseas.

For example, the NSW Government has established the $310 million Climate Change Fund. It includes a $40 million Renewable Energy Development Program for pilot and demonstration projects, such as solar and geothermal power stations.

In addition, the NSW Government has also announced $22 million in funding for two pilot clean coal projects. The first project will identify potential carbon storage sites, to be followed by a pilot carbon capture and storage project. The second is a contribution to an ultra clean coal demonstration plant at Cessnock.

The Commonwealth Government also provides funding for research, development and demonstration of low emissions and renewables technologies. The Low Emissions Technology Demonstration Fund ($500 million) is designed to demonstrate breakthrough technologies with significant long-term greenhouse gas reduction potential in the energy sector.\(^\text{18}\)

\(^{16}\) The Climate Change and Greenhouse Emissions Reduction Act 2007 became law on 3 July 2007.

\(^{17}\) Further information is available at www.climatechange.sa.gov.au

\(^{18}\) Details are at http://www.greenhouse.gov.au/demonstrationfund/. 
The Renewable Energy Development Initiative ($100 million) offers grants between $50,000 and $5 million for research and development and early-stage commercialisation projects with high commercial and greenhouse gas abatement potential.

The Queensland Government has announced a $300 million Queensland Climate Fund which will be used to develop new technologies such as clean coal and hydrogen fuel cells.

The Western Australian Government has announced a $36.5 million Low Emissions Energy Development Fund to promote emission reduction and support emerging technologies.
A5.2 International Greenhouse Gas Reduction Policies

Introduction

This Appendix outlines the key features of various greenhouse gas reduction policies in place or under development in a number of overseas locations. Throughout the developed world, there is a growing momentum towards introducing emissions trading schemes. The European Union Emissions Trading Scheme (EU ETS) is the largest trading scheme in place. In the USA, a number of initiatives are at various stages of development. This Appendix outlines the key features of the EU ETS, and two initiatives in the USA – the Regional Greenhouse Gas Initiative (RGGI) on the east coast and the Western Regional Climate Action Initiative (WRCAI) on the west coast. The latter includes participation by two Canadian provinces.

Carbon taxes are also used in some European countries.

A significant driver for these greenhouse gas reduction policies is the United Nations Framework Convention on Climate Change and, more specifically, the Kyoto Protocol which came about from it.

The Kyoto Protocol imposes legally binding emissions reductions targets on those developed countries which have ratified it. It therefore strongly influences the greenhouse gas policy environment in all developed countries, with the partial exception of the USA and Australia which have signed but not ratified the Kyoto Protocol. In addition, the Kyoto Protocol drives the incentives for emission abatement projects in most developing and transitional economies via the Clean Development Mechanism (CDM) and Joint Implementation Mechanism (JI).¹.

¹ http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php
United Nations Framework Convention on Climate Change

The 1992 United Nations Framework Convention on Climate Change (the Convention) sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. The Convention’s objective is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, within a time-frame sufficient to allow ecosystems to adapt naturally, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.²

The Convention acknowledges that the global nature of climate change requires the widest possible cooperation between nations in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions.³

The Convention has been ratified by 191 countries, including Australia. It commits Governments to:

- gather and share information on greenhouse gas emissions, national policies and best practices
- launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries
- co-operate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol

To build upon the Convention, the 1997 Kyoto Protocol provided stronger and more detailed commitments for industrialised countries in order to more seriously tackle climate change. Also, the Protocol reaffirmed all parties’ common but differentiated responsibilities to mitigate and facilitate adaptation to climate change. The Protocol came into force on 16 February 2005.⁴

² http://unfccc.int/essential_background/convention/background/items/1353.php
³ http://unfccc.int/essential_background/convention/items/2627.php
⁴ http://unfccc.int/kyoto_protocol/items/2830.php
Under the Protocol, the 38 Annex 1 Countries, which include developed nations as well as thirteen Eastern European economies in transition, are assigned emission targets (assigned amount) for the period 2008-2012. The targets are legally binding on countries that have ratified the Protocol. Australia and the United States are the only Annex 1 countries not to have ratified the Protocol.

To reduce the compliance costs of meeting their targets, liable Annex 1 parties may use the following mechanisms to offset or meet their emission targets:

- create domestic offset credits called **removal units** (RMUs) from carbon 'sinks’ in the land use, land-use change and forestry sector
- use **emission reduction units** (ERUs) created from abatement activities from another Annex 1 party under the ‘**joint implementation**’ mechanism (JI)
- use **certified emission reductions** (CERs) created from abatement projects in non-Annex I Parties under the **clean development mechanism** (CDM)
- transfer emissions from another Annex 1 party’s assigned amount known as **assigned amount units** (AAUs)
- purchase CERs, ERUs or RMUs.

Under Article 17 of the Kyoto Protocol, the use of international offset credits must only be supplemental to domestic action which must constitute a significant element of a party’s efforts in meeting their commitments. However the Kyoto Protocol provides no guidance as to how to quantify the limits of use of international offsets to meet the supplementarity requirement.

The European Union has quantified supplementarity to mean that a country can use CERs and ERUs to make up a maximum 50 per cent of the difference between its projected emissions in 2010 (or base year 1990, or 2004 emissions, whichever is the greater) and its average annual economy-wide Kyoto target. Recently, in Australia, the Prime Minister’s Task Group on Emissions Trading considered the issue of the use of international offsets, but the PM’s Task Group report does not specify whether there should be limits on their use.

Under the Kyoto Protocol, non-Annex 1 developing countries do not have any emissions targets. They can, however, create CERs under the CDM mechanism for sale to Annex 1 countries. As at mid-August, the price of issued CERs was about €16-17 per tonne of carbon dioxide equivalent (tCO₂e), which is equivalent to around A$26.32-29.96.\(^5\)

\(^5\) [http://unfccc.int/kyoto_protocol/background/items/3145.php](http://unfccc.int/kyoto_protocol/background/items/3145.php)

European response to the Kyoto Protocol obligations

As noted above, all countries listed in Annex 1 of the Convention have ratified the Kyoto Protocol, with the exceptions of the USA and Australia. The Kyoto Protocol commits the European Union to reduce its greenhouse gas emissions by 8 per cent from the 1990 baseline by 2012\(^7\). The targets for individual EU member countries are listed in Table 5.2.1 below. In order to meet its emissions reduction commitments, the EU has decided to implement an emissions trading scheme, the EU ETS.

As noted above, the EU ETS is the world’s largest emissions trading scheme. Phase 1 of the EU ETS runs for the period 2005-2007. In Phase 1, the EU ETS covers around 45 per cent of total greenhouse gas emissions from EU member countries, and most permits have been allocated for free. Member countries have been able to auction up to 5 per cent of the national allocation of permits.\(^8\). Permits in Phase 1 are known as European Union Allowances (EUAs).

The price of EUAs has fallen dramatically in the last 12 months, due to an over-allocation of free permits. The price of Phase 1 EUAs peaked at more than €30 (A$49.32) in April 2006. It then dropped significantly when emissions verification reports for 2005 revealed that EU countries had emitted less than their annual allocations.

As at 20 August 2007, the spot price of a Phase 1 December 2007 EUA was reportedly €0.11 (A$0.18).\(^9\)

Phase 2 of the EU ETS runs for the period 2008-2012 and will coincide with the Kyoto Protocol’s first commitment period. Final details about Phase 2 are still being negotiated within the EU. There are indications that the final allocation of EUAs to EU countries will result in a shortage of EUAs from 2008. This has resulted in a strong forward price in the trade of Phase 2 EUAs. At the close of trade on 17 August 2007, the forward price of the December 2008 EUA contract was €19.35 (A$31.81).\(^10\)

\(^7\) The 8 percent reduction applies to the 15 countries who were EU members at the time the Protocol was signed. Since then, EU membership has increased to 27. The EU has decided to meet the 8 percent reduction by way of differentiated targets for individual countries within the original 15 members. Table A6.1 below lists the reduction targets for individual member countries.


\(^9\) Next Generation Energy Solutions, The Green Room, edition 116, 20 August 2007. Currency conversion rate of 27/8/07: 1A$ = €0.60; source www.xe.net. This rate is used for all Euro currency conversions in this chapter.

\(^10\) Ibid.
The EU ETS is scheduled to undergo its first linkage to another scheme in the near future. Norway is currently operating an emissions trading scheme separate to the EU ETS. From 1 January 2008, the EU ETS and the Norwegian trading scheme will be linked. 11

**Additional targets adopted in Europe**

In March 2007, the European Union agreed on greenhouse gas emission reduction targets additional those contained in the Protocol. The EU has agreed to achieve the following targets by 2020:

- reducing greenhouse gas emissions by 20 per cent on 1990 levels, with a commitment to a 30 per cent cut if the rest of the developed world does the same
- 20 per cent of electricity to be generated from renewable energy sources
- 10 per cent of its cars and trucks to run on biofuels.

Details about how these targets are to be achieved are still to be negotiated.

Table 5.2.1 lists the greenhouse gas emissions reductions targets for the 27 members of the European Union. The table shows firstly, the emissions levels (in million tonnes of CO\(_2\)e) of the members in 1990 (the baseline year). It then shows the targets applicable to each country under the Kyoto Protocol for 2012 in terms of the percentage decrease in emissions from the 1990 base line. It also shows additional targets announced by some of the EU members.

The announced targets for the year 2050 are broadly consistent with those announced by a number of the State Governments in Australia. This is because the targets in Europe and in the Australian States have been developed in order to respond to the conclusions of the Intergovernmental Panel on Climate Change (IPCC). The IPCC’s 2007 Assessment Report concludes that, if the global mean temperature increase is to be limited to less than 2.4 degrees Celsius, global CO\(_2\)-e emissions in 2050 must be reduced by 50 to 85 per cent of 2000 emissions. These scenarios include global CO\(_2\)-e emissions peaking by 2015.

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11 Op cit, xvii, p 67.
Table 5.2.1: European Union Greenhouse Gas Emission Reduction Targets

<table>
<thead>
<tr>
<th>Country</th>
<th>1990 Baseline (Mt)</th>
<th>Kyoto Target 2012 (%)</th>
<th>2020 Target (%)</th>
<th>Other Announced Targets (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU – 15 member states as at signing of Kyoto Protocol</td>
<td></td>
<td>-8 (EU to decide how the target will be redistributed among the 15 states)</td>
<td>-20 (1990 baseline)</td>
<td>-30 (if rest of developed world agrees to also do so)</td>
</tr>
<tr>
<td>Austria</td>
<td>78.9</td>
<td>-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>146.9</td>
<td>-7.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>69.3</td>
<td>-21</td>
<td>-50 by 2030(^\text{12}) (1990 baseline)</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>71.1</td>
<td>0</td>
<td>-75 by 2050(^\text{13}) (1990 baseline)</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>567.1</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>1,230.0</td>
<td>-21</td>
<td>-40(^\text{14}) (1990 baseline)</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>111.1</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>55.8</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>518.9</td>
<td>-6.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td>12.7</td>
<td>-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>214.3</td>
<td>-6</td>
<td>-30(^\text{15}) (1990 baseline)</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>60.0</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>289.4</td>
<td>15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^{12}\) http://www.inforse.dk/europe/word_docs/s_gbo_dk.doc
\(^{13}\) http://www.industrie.gouv.fr/energie/anglais/politique-energetique.htm
\(^{15}\) http://www.bellona.org/articles/dutch_enviropolicy
Table 5.2.1: European Union Greenhouse Gas Emission Reduction Targets (cont)

<table>
<thead>
<tr>
<th>Country</th>
<th>1990 Baseline (Mt)</th>
<th>Kyoto Target 2012 (%)</th>
<th>2020 Target (%)</th>
<th>Other Announced Targets (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>72.5</td>
<td>4</td>
<td>-30(^{16})</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1990 baseline)</td>
<td>(1990 baseline)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>767.9</td>
<td>-12.5</td>
<td>-26 to -32(^{17})</td>
<td>-60 by 2050 (^{18})</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1990 baseline)</td>
<td>(1990 baseline)</td>
</tr>
<tr>
<td>New members May 2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>6.0</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>196.3</td>
<td>-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>42.6</td>
<td>-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>122.2</td>
<td>-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>25.9</td>
<td>-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>50.9</td>
<td>-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malta</td>
<td>2.2</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>565.3</td>
<td>-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>73.2</td>
<td>-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>20.2</td>
<td>-8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

New members Jan 2007

<table>
<thead>
<tr>
<th>Country</th>
<th>1990 Baseline (Mt)</th>
<th>Kyoto Target 2012 (%)</th>
<th>2020 Target (%)</th>
<th>Other Announced Targets (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>88.4(^{18})</td>
<td>-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>212.9(^{19})</td>
<td>-8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

North American initiatives to reduce greenhouse gas emissions

Regional Greenhouse Gas Initiative (RGGI)

The RGGI is a co-operative effort by 10 north-eastern and Mid-Atlantic States in the United States of America to reduce carbon dioxide emissions. Its central element is a multi-state cap-and-trade program with a market-based emissions trading system. The proposed program will require electricity generators in participating states to reduce carbon dioxide emissions. It is reported that the program will begin by capping emissions at current levels in 2009, and then reducing emissions 10 per cent by 2019.\(^{20}\)

\(^{16}\) http://www.greencarcongress.com/2007/05/sweden_targets_.html
\(^{17}\) Department for Environment Food and Rural Affairs (UK), 2007, Climate Change Strategic Framework.
\(^{18}\) Bulgarian Government’s 2006 Annex I Party GHG Inventory Submission
\(^{19}\) Romanian Government’s 2006 Annex I Party GHG Inventory Submission
\(^{20}\) For more information see http://www.rggi.org/
Western Regional Climate Action Initiative (WRCAI)

As at 13 June 2007, the Western Regional Climate Action Initiative involves six western states in the USA (Arizona, California, New Mexico, Oregon, Utah and Washington) as well as two Canadian provinces (British Columbia and Manitoba).

The Agreement initially signed by the Governors of Arizona, California, New Mexico, Oregon and Washington on 26 February 2007 committed to:

- setting an overall regional goal, within six months of the effective date of this initiative, to reduce emissions from these states collectively, consistent with state-by-state goals
- developing, within eighteen months of the effective date of this agreement, a design for a regional market-based multi-sector mechanism, such as a load-based cap and trade program, to achieve the regional greenhouse gas reduction goal
- participating in a multi-state greenhouse gas registry to enable tracking, management, and crediting for entities that reduce greenhouse gas emissions, consistent with state reporting mechanisms and requirements.

California

In addition to its membership of WRCAI, California has undertaken a number of greenhouse gas reduction initiatives on its own. On 1 June 2007, California released a draft report on a possible state-wide cap and trade scheme for the consideration of the Californian Air Resources Board to decide whether or not emissions trading should form part of the State’s strategy to meet its legislated greenhouse gas emission targets of reducing emissions to:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 per cent below 1990 levels by 2050.

California has also made it mandatory through its Renewable Portfolio Standard that 20 per cent of electricity supplied in the State is to be from renewable sources by 2010, with the renewable energy target increasing to 33 per cent by 2020.

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21 For more information, see: http://www.climatechange.ca.gov
Canada

In April 2007, the Canadian Government announced it aimed to reduce the country’s greenhouse gas emissions by 20 per cent by 2020 on 2006 levels.

The Canadian Government has also announced that a domestic baseline and credit scheme will be introduced to allow regulated firms to buy and sell emission credits among themselves. The trading scheme would allow regulated firms to invest in verified emission reductions outside the regulated system to create domestic offsets and also allow firms to access certain qualifying credits from the Kyoto Protocol’s Clean Development Mechanism to meet their targets.22

New Zealand

On 8 May 2007, the Minister for Climate Change indicated that in the next three months the New Zealand Government will make important decisions on New Zealand’s move towards a greenhouse gas emissions trading regime. 23 Although the Government has not set any emissions reduction targets beyond the end of the Kyoto Protocol in 2012, the opposition National Party has announced its policy for a 50 per cent reduction on 1990 levels by 2050.

Negotiating future international emissions reductions

International emissions reduction targets and carbon trading markets beyond the expiry of the Kyoto Protocol in 2012 have not yet been decided. There are a number of current and proposed forums and mechanisms which may lead towards a global agreement on mitigating climate change beyond the end of the Kyoto Protocol in 2012.

The following section outlines major recent developments at the inter-governmental level. Important factors in setting the international carbon constraint and for influencing Australia’s potential participation in it include the process for setting it, the form of an agreement and the size of the emissions constraint or target.

Post Kyoto

Parties to the Kyoto Protocol meet under the Convention to discuss further global action on climate change beyond 2012. Linked to this process, but currently operating in parallel, is the Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention, in which Australia and other non-parties to the Kyoto Protocol can contribute24.

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22 For more information see: http://www.ec.gc.ca


24 For more information, see UNFCCC, 2006, Report of the Conference of the Parties on its twelfth session, held in Nairobi, 6 to 17 November 2006 available from http://unfccc.int.
G8 Summit

In June 2007, the leaders of the eight leading industrialised nations agreed that “the UN climate process is the appropriate forum for negotiating future global action on climate change” and committed to achieving a comprehensive post 2012-agreement under the Convention by 2009 and including all major emitters. The G8 leaders stressed their continued support for the Convention principle of common but differentiated responsibilities and respective capabilities. They acknowledged “the continuing leadership role that developed economies have to play in any future climate change efforts to reduce global emissions” and also recognised that the efforts of developed economies will not be sufficient.

The leaders agreed that the United States’ proposal for a separate process “will support the UN climate process”. The proposal involves a meeting of major greenhouse gas emitting countries, including Brazil, China, India, Mexico and South Africa, later in 2007.

APEC and AP6

In the Asia-Pacific region, the Australian Government is exploring greater regional cooperation on climate change through the Asia-Pacific Economic Co-operation (APEC) Forum, the Asia-Pacific Partnership on Clean Development and Climate (AP6) and a number of bilateral agreements. These agreements focus primarily on international cooperation on technology development and transfer. No decisions have been taken to establish greenhouse gas emissions reduction targets, carbon trading markets or carbon prices.

25 The G8 member countries are the USA, Japan, Germany, the UK, France, Italy, Canada and Russia.
26 For more information see G8 Summit, 2007, Growth and Responsibility in the World Economy, Summit Declaration (7 June 2007).
27 For more information, see http://www.dfat.gov.au