

International and national initiatives

This section reports on international research and regulations relevant to management of the atmospheric environment. It also presents information on relevant Commonwealth, state and local government regulations and initiatives, as well as highlighting activities undertaken by industry and by non-government organisations to limit emissions of greenhouse gases and air pollutants.

International

Intergovernmental Panel on Climate Change

Australian scientists are making a significant contribution to international research into the science and likely effects of climate change. The IPCC, which was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), is undertaking an assessment of this research. Their third assessment report was completed in 2001, and is the most comprehensive analysis yet of climate change science, effects and projections. As well as the assessment reports (IPCC 1996 and 2001), the IPCC produces technical papers and develops methodologies, such as for conducting national greenhouse gas inventories.

The IPCC is organised into three working groups: I concentrates on the science of climate change, II on effects and response options, and III on economic and social dimensions of climate change.

Framework Convention on Climate Change

In June 1992, Australia along with more than 150 other nations signed the Framework Convention on Climate Change. The objective of the Convention is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human interference with the climate system. The Convention aims to achieve stability within a time frame that will allow ecosystems to adapt naturally to climate change and to ensure food production is not threatened and economic development is able to proceed in a sustainable manner. The Convention came into force in March 1994.

One of the requirements of the Framework Convention on Climate Change is that developed countries that are party to the Convention produce annual national greenhouse gas emission inventories.

The inventories are designed to underpin development of greenhouse gas reduction measures and monitoring and reviewing of these measures, as well as assessing progress towards our national emissions reduction target.

Australia has also made two comprehensive reports on its commitments under the Convention. The first national communication (DEST 1994) outlined the action that Australia was taking to reduce emissions, and provided estimates of national emissions and future projections. DEST (1997), the second national communication, updated this information.

Some 180 governments have now ratified the treaty. Representatives meet regularly at the annual Conference of the Parties to review implementation of the Convention and continue talks on how best to tackle climate change.

The Kyoto Protocol

The Framework Convention on Climate Change was strengthened by the Kyoto Protocol, agreed in December 1997. The Protocol represents a significant advance in international efforts to combat global warming. For the first time, developed countries have agreed to consider legally binding commitments to reduce their greenhouse gas emissions and address the threat of climate change.

As a whole, developed countries are committed to reducing their greenhouse gas emissions by at least 5% by 2008 to 2012 from 1990 levels. However, at Kyoto, Australia negotiated an 8% increase in emissions in the target period, and this has already been more than doubled (see *Climate variability and change* on page 37).

Under the Kyoto Protocol, countries must measure and report on their greenhouse gas emissions and describe how they are meeting their obligations. As recognising that developed

countries have different economic circumstances and differing capacities to make emissions reductions, the Protocol's greenhouse gas emissions targets vary.

Although over 80 countries have agreed to the Kyoto Protocol, it may be several years before it comes into force, if indeed it at all. The Protocol includes actions only by industrialised nations.

Montreal Protocol

The Convention for the Protection of the Ozone Layer, agreed upon in Vienna in 1985, determined to take 'appropriate measures . . . to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the Ozone Layer'.

The Vienna Convention underpinned the 1987 formulation of the Montreal Protocol, an intergovernmental agreement to restrict the manufacture and use of ozone-depleting substances. It was discovery of actual stratospheric ozone damage that led to establishment of the Montreal Protocol, which has now been signed by over 165 countries.

Since its inception, the Protocol has been regularly revised and tightened in response to scientific findings on atmospheric growth rates of ozone-depleting chemicals and on measurements of ozone destruction.

Production of the most damaging ozone-depleting substances, including CFCs and halons, was eliminated, except for a few critical uses, by 1996 in developed countries and will be eliminated by 2010 in developing countries.

Hundreds of scientists worldwide write and review the periodic WMO/UNEP 'state-of-the-science' assessments of ozone depletion (WMO 1999); hundreds of additional scientists write the studies that are referenced within them.

Commonwealth government

Climate monitoring

In Australia, meteorological observations have been collected for more than 100 years. These records underpin research into climate variability and contribute to the ability to detect and assess the effects of climate change. The National Climate Centre of the Bureau of Meteorology (BoM) has responsibility for collecting and maintaining Australia's climatological data.

The Bureau also maintains regional databases that include observations from capital city stations and from other locations.

Climate variability

National Drought Policy

Australia's policy response to drought has moved from a view, held prior to the 1990s, that drought in Australia is a 'natural disaster' to a policy view that accepts that drought is an inherent part of natural climatic variability. The extremes of climate (including drought) are now formally considered as part of the commercial risk associated with farming and, therefore, farmers and natural resources managers are required to adopt a risk management approach to climatic variability.

Drought relief from the Commonwealth government is now available only for droughts of 'exceptional circumstances'. In these cases, the government provides short-term help to farmers.

For a drought to be deemed an exceptional circumstance, it must be rare and severe, persist for more than 12 months and cause a severe downturn in farm income (a downturn which is likely to occur in a region only four or five times in one century).

One of the major objectives of the National Drought Policy is to improve understanding of drought and drought policy, and to develop regional drought alert systems to help farmers identify the onset of drought and then adopt the most appropriate management strategies.

Climate change

Australian Greenhouse Office

The Australian Greenhouse Office (AGO) was established in 1997 as an agency to provide a whole-of-government approach to greenhouse matters, and to deliver the Commonwealth

government's \$180 million climate change package, 'Safeguarding the future: Australia's response to climate change'.

The AGO also coordinates the Commonwealth's contribution to the 1998 National Greenhouse Strategy and is responsible for delivery of the Commonwealth government's \$796 million 'Measures for a better environment' package.

If Australia ratifies the Kyoto Protocol and it enters into force, the government is committed to a target of limiting Australian greenhouse emissions to 8% above 1990 levels by 2008 to 2012. This target represents around a 30% reduction against business as usual projections for 2008 to 2012, excluding land use change.

The AGO is responsible for coordination of domestic climate change policy, delivery of greenhouse response programs, and functions as a central point of contact for stakeholder groups.

National Greenhouse Strategy

The National Greenhouse Strategy (AGO 1998) is a major policy initiative of the Commonwealth, state and territory governments. The Strategy provides the framework for Australia's greenhouse response and is the primary mechanism through which our international commitments will be met. The Strategy sets out a range of actions to be implemented by governments, industry and the community.

The Strategy addresses three key topics:

- improving our awareness and understanding of greenhouse issues
- limiting the growth of greenhouse emissions and enhancing Australia's greenhouse sinks
- developing ways of coping with likely climatic changes.

There are 86 measures to address growth in greenhouse gas emissions. These are grouped into eight modules:

- 1 profiling Australia's greenhouse gas emissions
- 2 understanding and communicating climate change and its effects
- 3 partnerships for greenhouse action: governments, industry and the community
- 4 efficient and sustainable energy use and supply
- 5 efficient transport and sustainable urban planning
- 6 greenhouse sinks and sustainable land management
- 7 greenhouse best practice in industrial processes and waste management
- 8 adaptation strategies for climate change.

Greenhouse gas inventories

As part of commitments under the United Nations Framework Convention on Climate Change, Australia has produced an inventory of national greenhouse gas emissions every year since 1990. These inventories provide a baseline from which we are able to monitor and review response action and develop projections of greenhouse gas emissions.

In addition to the National Greenhouse Gas Inventory, there are periodic state and territory inventories. Each inventory is essentially a database of human-induced greenhouse gas emissions sources and sinks, which are categorised into six sectors: energy, land use change and forestry, agriculture, industrial processes, solvent and other product use, and waste.

The 1998 National Greenhouse Gas Inventory, released in July 2000 (AGO 2000), provides the latest report on Australia's greenhouse gas emissions. This Inventory incorporates improvements in data collection methods that have been used to update emission estimates in the 1990 to 1997 Inventories (for updated information see <http://www.greenhouse.gov.au/inventory/sitemap.html>).

The Inventory covers the major greenhouse gases: carbon dioxide, methane, nitrous oxide, perfluorocarbons (PFCs), HFCs and sulfur hexafluoride.

Although water vapour is the major greenhouse gas in the atmosphere, human activity has little direct effect on its concentrations. Thus, water vapour is not included in the Inventory.

The Inventory also includes 'indirect' greenhouse gases, which can affect concentrations of actual greenhouse gases, such as through chemical reactions. These 'indirect' greenhouse gases include carbon monoxide, oxides of nitrogen, non-methane VOCs and sulfur dioxide.

Methodologies for assessing emissions inventories are constantly being refined and the contents of each inventory represent the best information available at the time of publication.

National Carbon Accounting System

About 30% of Australia's human-induced greenhouse gas emissions come from land-based activities such as cropping, grazing, land clearing and forestry.

The Australian government has established the National Carbon Accounting System to more accurately assess the contributions that land-based activities make to greenhouse gas sources and sinks. The National Carbon Accounting System will determine how much and how quickly carbon is lost from soils after clearing and the effect of land management and landuse changes on the amount of carbon stored in plants and soil. Other questions to be addressed will be how much atmospheric carbon is taken up by growing forests and how much carbon is lost when timber is harvested.

The key components of the National Carbon Accounting System are land clearing, landuse and management, biomass estimation and soil-carbon estimation.

Greenhouse Challenge Program

The Greenhouse Challenge Program, announced in 1995, is a joint initiative of the Commonwealth government and Australian industry. Greenhouse challenge is a voluntary program involving cooperation with Australian industry to reduce greenhouse emissions. Typically, reductions come from improvements in energy and process efficiency.

Under the Greenhouse Challenge Program, more than 500 companies have made voluntary commitments to reduce their greenhouse gas emissions. Greenhouse Challenge agreements cover almost half of total greenhouse gas emissions from the industrial and government sectors.

Bush for Greenhouse

The Bush for Greenhouse Program, launched in 2000, aims to increase Australia's greenhouse gas sink capacity by increasing corporate investment in native revegetation. Revegetation removes carbon dioxide from the atmosphere.

The program builds on programs such as Bushcare and Greenhouse Challenge. Bush for Greenhouse seeks to build new partnerships between industry and landholders to achieve greenhouse and other environmental outcomes including prevention of land degradation.

The AGO has appointed a carbon broker to secure corporate investment and manage a pool of revegetation projects.

Greenhouse Gas Abatement Program

The Greenhouse Gas Abatement Program aims to reduce Australia's net greenhouse gas emissions by supporting activities likely to result in substantial emissions abatement, particularly in the first commitment period (2008–2012) under the Kyoto Protocol. The program has been allocated \$400 million from 2000–2001 to 2003–2004.

The Program targets opportunities for cost-effective abatement across the economy that would not occur without additional support. Priority is given to projects that result in the abatement of over 250 000 t of CO₂-e emissions per year. This is the equivalent of emissions from about 60 000 cars or 36 000 houses.

Energy efficiency

The Commonwealth government is working with the building industry to develop energy efficiency codes and standards for incorporation into the Australian building code. When these changes become effective, mandatory minimum energy performance standards will apply to all new and substantially refurbished residential and commercial buildings. These regulations will be contained in state and territory legislation.

Energy efficiency regulations for electrical appliances and equipment are also contained in state and territory laws. The regulations specify requirements for energy labelling of appliances and minimum energy performance.

Mandatory labelling applies to six types of household appliances: refrigerators and freezers, clothes dryers, clothes washers, dishwashers, electric storage water heaters and air conditioners. Minimum energy performance standards are in force for refrigerators and freezers, and for electric storage water heaters (see <http://www.energyrating.gov.au> for information on their energy performance).

Renewable energy

Australia has committed funds to researching and commercialising renewable energy technology. New technologies being developed include geothermal energy (from hot dry rocks), solar power, wind power and harnessing methane produced by landfill.

Commonwealth programs and initiatives promoting renewable energy include the Renewable Remote Power Generation Program that provides a rebate of up to 50% of the cost of converting diesel-based, off-grid electricity supplies to renewable energy technologies, and the Photovoltaic Rebate Program that offers cash rebates to householders who install grid-connected or stand-alone photovoltaic systems. The Renewable Energy Commercialisation Program offers grants to renewable energy initiatives that have strong commercial potential.

The *Renewable Energy (Electricity) Act 2000* requires wholesale purchasers of electricity to source increasing amounts of electricity from accredited renewable energy sources, increasing the contribution that renewable energy makes to meeting Australia's electricity needs from the current levels of around 10% to about 12% by 2010.

Transport emissions

The Commonwealth government seeks to reduce greenhouse emissions from road transport through programs including the Environmental Strategy for the Motor Vehicle Industry, the broader National Greenhouse Strategy and measures to support and promote the increased use of alternative fuels.

Fugitive emissions

Fugitive emissions are those that occur as a by-product of industrial and other processes. These emissions include losses of gas from pipelines and evaporation of petrol from motor vehicles.

Fugitive emissions from oil and gas exploration, production and refining are regulated, requiring industry to detect and repair leaks and monitor fugitive emissions. Improvements to pipelines are lowering leakages, one of the major sources of methane in Australia.

Ozone depletion

Australia's obligations under the Montreal Protocol have been implemented domestically through complementary legislation and controls enacted by Commonwealth, state and territory governments. Environment Australia is the Commonwealth government agency responsible for coordinating national ozone protection measures and administering ozone protection legislation.

The *Ozone Protection Act 1989* implements the provisions of the Montreal Protocol. The Act regulates the phase-out of ozone-depleting substances. This phase-out has occurred in some cases ahead of the Protocol requirements. Environment Australia controls the manufacture, import and export of ozone-depleting substances by issuing licences for these activities, and undertaking enforcement action when breaches occur.

State and territory environment protection agencies and environment departments are responsible for controlling the sale and use of ozone-depleting substances. They also ensure proper training and accreditation of people who service equipment containing these substances.

Controls on methyl bromide and HCFCs were introduced in 1996. A licence is now required for manufacture, import or export of these substances. Methyl bromide is used for building fumigation and to control pests and diseases in soil and stored grains. HCFCs have lower ozone depletion potentials than CFCs and are transitional chemicals being used as CFCs are phased out. HCFCs are refrigerants, solvents and blowing agents for plastic foam manufacture.

The Australian Halon Management Strategy meets international obligations to provide a framework for management of Australia's halon stocks to 2030 and the ultimate elimination of their use.

In 2000, the Commonwealth government announced that proceeds from a sale of halon 1301 to the United States would enable expansion of Australia's halon storage services to neighbouring countries such as New Zealand, Fiji, Malaysia, India and China.

Under the Montreal Protocol, a Multilateral Fund supports the transfer of ozone-friendly technology to developing countries. Australia contributes to the Fund and is a member of the

Executive Committee that manages the Fund. Australia also undertakes bilateral ozone protection projects in developing countries.

Air quality

The NEPC (see <http://www.nepc.gov.au>) was established as part of the 1992 Inter-governmental Agreement on the Environment. The Council's role is to set national environmental goals and standards. The Council is a statutory body made up of one Minister each from the Commonwealth, state and territories. The Council seeks to ensure that all Australians have equivalent protection from air pollution (and other forms of pollution) regardless of where they live.

State environmental authorities are responsible for setting environmental standards. The NEPC's role is to enact uniform environmental standards by having each State parliament pass identical legislation, known as a National Environment Protection Measure (NEPM).

In June 1996, the NEPC agreed to begin to develop a NEPM for ambient air quality, which was made on 26 June 1998. The objective of this Measure is ambient air quality that allows for the adequate protection of human health and wellbeing. In Table 2, there is a partial statement of the NEPM ambient air quality standards. A full statement is given in *Urban air quality*. These standards refer only to a group of six non-carcinogenic pollutants, known as criteria pollutants. The standards were set in line with the NEPM objective for the adequate protection of human health and wellbeing and mark the first time that Australia has generated uniform air quality standards nationwide.

Environment Australia has introduced The Living Cities—Air Toxics Program to underpin development of national management strategies for air toxics and indoor air quality.

Air Pollution in Major Cities Program

In 1997, as part of the Natural Heritage Trust, the Commonwealth government established the Air Pollution in Major Cities Program. The Program's objective is to develop national strategies and standards, within a framework of sustainable development, to minimise the adverse effects of urban air pollution. The Program also seeks to address key threats to sustainability associated with air quality that were identified in SoE (1996).

The Program focuses on the six pollutants to which most Australians are likely to be exposed: carbon monoxide, nitrogen dioxide, ozone, lead, particles and sulfur dioxide.

Inquiry into urban air pollution in Australia

As part of the Air Pollution in Major Cities Program, the Commonwealth government commissioned the Australian Academy of Technological Sciences and Engineering (ATSE) to conduct an Inquiry into urban air pollution in Australia (ATSE 1997). This independent inquiry was charged with identifying practical solutions to air quality problems that could be implemented by governments, industry and the community.

Members of the Academy and many other professionals and academics from around Australia contributed to the Inquiry. There were 125 public submissions and nine public meetings, involving environmentalists, community groups, industry and government.

The Inquiry examined past and present levels of air pollution in the major airsheds and summarised the major sources of emissions nationwide. Analysis by the Inquiry showed that on days when weather conditions are conducive to smog formation, exposure to ozone and other components of photochemical smog can be substantial, even when current standards are not exceeded.

The Inquiry also found that introduction of unleaded petrol has reduced pollution levels of lead and the use of catalysts has reduced many other pollutants emitted from new vehicles. However, airshed quality remained steady because of the increase of vehicle use and the number of older vehicles on the roads.

The Inquiry found that while Australian urban ambient air quality was good in world terms, there are still problems. In each capital city, conditions that trap or circulate air over urban areas during sunny days or winter inversions occur. Under these conditions, levels of smog or airborne particulates may approach or exceed air quality standards.

The main current and future areas of concern are particles, oxides of nitrogen and other smog precursors such as hydrocarbons.

Australia is one of the world's most highly urbanised countries. Per capita, Australians are among the world's highest pollutant emitters although fortunately emissions per unit area are

low by world standards because of the relatively low population densities of the cities. The Inquiry concluded that population trends over the ensuing 15 years and associated demand for services and travel necessitate that a cautious approach be taken in order to ensure that air quality is maintained.

The Inquiry also concluded that we do not know enough about airsheds. There was also a lack of standardisation in measurement, monitoring, data management and reporting among states and territories. Specific recommendations have been made in this regard and state and Commonwealth collaboration will be necessary to develop and implement nationally based methods.

Reinforcing the ATSE Inquiry recommendations, the Air Pollution in Major Cities Program seeks increased and nationally consistent monitoring of air quality across Australia to allow improved targeting of management strategies. The Program also offers support for air quality research and provides community education on air quality issues.

The Air Pollution in Major Cities Program has funded two key monitoring projects. The Australian Air Quality Forecasting System for Major Cities Project has developed an advanced air quality forecasting model, integrating high-resolution weather and photochemical smog forecasting using real-time emissions inventory techniques. The system provides detailed daily three-dimensional forecasts of weather and air pollution across the airshed. The fine particle measurement calibration study has explored the relationship between two methods of monitoring and reporting air quality. Comparison of data from the two methods underpins understanding of changes to air quality over time.

National Pollutant Inventory

Established in 1998, the National Pollutant Inventory is an Internet database designed to provide the community, industry and government with information on the types and amounts of chemicals being emitted into the environment. It also shows the relative environmental effect of local industry and everyday activities.

A key objective of the National Pollutant Inventory is to help governments with environmental planning and management.

Developed cooperatively by the Commonwealth, states and territory governments and industry, the Inventory is a NEPM.

Industrial plants using more than a specified amount of the chemicals listed on the Inventory reporting list must estimate and report emissions of these substances annually. The government estimates emissions from facilities using less than the specified amount of listed chemicals for major population centres. The government also estimates emissions arising from mobile sources and from domestic activities, such as lawn mowing, house painting and wood fires.

Environment Australia makes the emissions information available on the National Pollutant Inventory Internet site (<http://www.npi.ea.gov.au>). The site includes a database, which is fully searchable, and information about the substances listed on the Inventory. It also explains what the substances are derived from, what they are used for, and the risks to human health and the environment associated with them.

The National Pollutant Inventory is based on trials run by the Victorian Environment Protection Authority (EPA) in 1995 and 1996 in Dandenong, Port Pirie, Newcastle and Launceston. These trials (EPA 1998) collected data on air pollution emissions. A further trial was done for Kalgoorlie by Western Australia Department of Environmental Protection and partners including Western Mining Corporation (DEP 1999).

The 1995 trial database was instrumental in determining the shape and look of the National Pollutant Inventory database. The Inventory is incomplete but is improving. For 1998–99, 23 industry sectors reported on 36 substances. In future, 80 industry sectors will report on 90 substances.

Motor vehicle emissions

The Commonwealth government has implemented programs designed to improve management of emissions from the transport sector. Motor vehicles are key sources of lead, carbon monoxide, nitric oxide and nitrogen dioxide. They are also the major source of photochemical smog precursors and of atmospheric particles.

After the introduction of ADR37/01 in 1997 to substantially reduce emissions from new petrol vehicles, the government announced in December 1999 its intention to harmonise Australian vehicle emission standards with more stringent existing and emerging European

standards. New ADRs will give effect to emission standards for new vehicles equivalent to Euro3 for petrol and alternative fuelled vehicles and Euro4 for diesel vehicles (see <http://www.dotrs.gov.au/land/Environment/cover-page.htm> for an implementation timetable). These standards are more stringent than those used currently and represent substantial reductions to the allowable emissions standards for new vehicles. New fuel standards are a concomitant.

A new NEPM has been made by NEPC for diesel vehicles (see <http://www.nepc.gov.au>).

The ATSE Inquiry into urban air pollution (ATSE 1997) recommended improvements to the quality of Australian fuel. In response, the Commonwealth commissioned the national Review of Fuel Quality Requirements for Australian Transport to examine the fuel quality needs of Australian transport. A consequence has been that new national fuel quality legislation was passed in November 2000 with the objective of ensuring that the benefits of new vehicle technologies are realised in Australia and to control harmful emissions that are the direct result of fuel composition. The first set of related standards for petrol and diesel were finalised in February 2001. These will pave the way for the implementation of the new emissions standards. They require the reduction of sulfur levels in petrol to a maximum of 150 ppm by 2005 and a reduction in sulfur levels in diesel fuel to a maximum of 50 ppm by 2006.

Processes to develop standards for LPG, biodiesel, and operability for petrol and diesel have commenced, with the processes for the development of standards for diesohol and CNG commencing shortly.

State, territory and local government

Climate variability

Climate information highway

The Department of Natural Resources and Mines and the Department of Primary Industries in Queensland have conducted considerable research, development and extension work aimed at improving management for climatic variability.

The Departments have established an Australia-wide climatic database and a range of decision-support tools to help people better manage climatic risks and opportunities. Extensive information is available at the 'Long Paddock' Web site (Figure 10).

Climate change

Cities for Climate Protection Program

The Cities for Climate Protection Program helps local governments take action on greenhouse. This international program is undertaken in collaboration with the AGO.

The Cities for Climate Protection Program provides local governments with a framework to reduce greenhouse gas emissions by assisting them identify the emissions of their council and community, set a reduction target and develop and implement an action plan to reach that target. More information is provided at <http://www.iclei.org/ccp-au/index.html> and the *Regional air quality* section.

Council actions might include reducing the energy used in local government facilities and capturing methane from landfill sites. Community actions initiated by local government could include incorporating an energy efficiency rating scheme into building approvals for new houses and commercial buildings, and incorporating public transport and bike lanes into urban planning.

Reducing energy consumption

The New South Wales Government established the Sustainable Energy Development Authority (SEDA) in 1996 to reduce the level of greenhouse gas emissions in the State. SEDA works to achieve its objectives by promoting investment in the commercialisation and use of sustainable energy technologies.



Figure 10: The Queensland Department of Natural Resources and the Department of Primary Industries 'Long Paddock' Web site at <http://www.dnr.qld.gov.au/longpdk/index.html>.

SEDA concentrates on energy efficiency, renewable energy and cogeneration technologies. It seeks to identify funding opportunities for sustainable energy technologies and supports commercial or near-commercial enterprises.

The Victorian Government has created the Sustainable Energy Authority to contribute to reduction of greenhouse gases, and support and facilitate development and use of sustainable energy options to achieve environmental and economic benefits for the community.

The South Australian Department for Environment and Heritage has a policy aimed at lowering energy use and hence greenhouse gas emissions. The policy involves integrating greenhouse considerations into strategic planning.

Air quality

State governments in Australia are working to improve air quality through action plans, management plans and strategies (see *Air quality action plans* on page 93).

Some local governments have prepared plans. Southern Sydney Regional Organisation of Councils, which includes 12 member councils, Newcastle City Council and Brisbane City Council have all produced air quality management plans (AQMPs).

Armidale City Council, Gold Coast City Council and Launceston City Council have produced plans designed to reduce air pollutants and improve air quality (see *Air quality action plans* (page 93) and *Number of local government associations that have programs to monitor and regulate regional air quality* (page 125)).

Industry

There are many examples of industry initiatives designed to lower emissions of greenhouse gases and air pollutants. For example, in 1996, the Minerals Council of Australia launched a voluntary code for environment management in recognition of community concerns about the environmental performance of the minerals industry. A key requirement of the Australian Minerals Industry Code for Environmental Management is for signatory companies to prepare publicly available annual environmental reports that document their performance and implementation of the code.

By 2000, 46 minerals companies had become signatories to the Code, representing over 300 mining or mineral processors. Collectively, these signatory companies produce about 85% of Australia's current total mineral production (AMI 2000).

The Electricity Supply Association of Australia has adopted a range of environmental policies, including policies on sustainable development and greenhouse response (ESAA 2000). The Association supports action to abate greenhouse gas emissions, to enhance sinks for absorbing greenhouse gases and to pursue research into possible greenhouse responses.

The Association plans to produce a code of greenhouse practice to provide guidance to member businesses with respect to effective implementation of response measures. In cooperation with Commonwealth and state governments, the Electricity Supply Association of Australia and its members are committed to implementing greenhouse response measures including the Greenhouse Challenge, implementation of efficiency standards for different fossil fuel classes for new projects, refurbishments and existing plants, and renewable energy targets.

Non-government organisations

Smogbusters is a community education initiative of the Commonwealth government's Air Pollution in Major Cities Program. The Commonwealth supports the project with funds from the Natural Heritage Trust.

Smogbusters' State projects are located in Conservation Councils, which are non-government, community-based organisations with the mission of protecting and enhancing Australia's environment. The Victorian Conservation Council, Environment Victoria, employs a national coordinator who coordinates project officers in Sydney, Brisbane, Adelaide, Perth and Melbourne.

Environmental groups such as the Australian Conservation Foundation campaign on national environment issues, urging government, industry and the community to take steps to protect and sustain the environment. Throughout the 1990s, the ACF (2000) has campaigned to reduce Australia's greenhouse gas emissions.

Greenpeace Australia Pacific runs a climate campaign aimed at 'preventing dangerous climate change by phasing out fossil fuels (oil, coal and gas) and replacing them with clean renewable energy, such as wind and solar' (Greenpeace 2000).