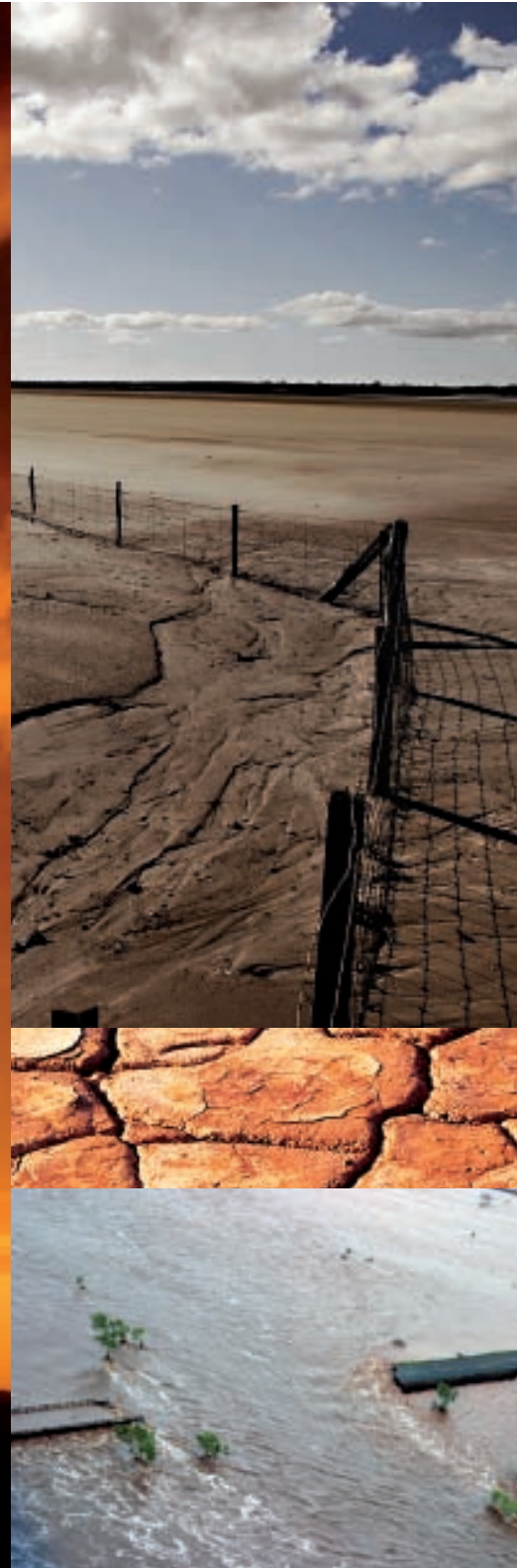


MAKING Decisions for the **Future:** **CLIMATE CHANGE**



Premier's climate change Action Statement

A Message from The Premier



There is no bigger threat to Western Australia's environment, economy and unique lifestyle than climate change.

Changing rainfall patterns and the increased number of severe weather events around the world have been attributed to climate change.

Many predict that these impacts will worsen, with increased environmental, social and economic impacts.

In Western Australia, the State Government has responded to decreasing rainfall levels by implementing measures to improve water efficiency and by developing new rainfall independent water resources, including building Australia's first large scale seawater desalination plant in Kwinana.

If we do not act now, the cost of adapting to a warmer global climate will escalate in Western Australia and around the globe.

The State Government has implemented a number of initiatives aimed at reducing greenhouse gas emissions, the principal cause of climate change.

Western Australia leads the nation in the use of natural gas as a primary energy source, resulting in fewer greenhouse gas emissions per kilowatt-hour of energy than any other mainland Australian State.

We have recently acted to secure this cleaner source of energy for future generations by requiring all new Liquefied Natural Gas projects to reserve 15 per cent of their reserves for domestic use.

Wind farms have been built in Esperance, Hopetoun, Bremer Bay, Exmouth and Denham and on Rottnest Island and the State Government is doubling the size of Perth's rail network with New MetroRail, taking 25,000 cars off our roads.

While we can be proud of these achievements, we must do more.

The State Government is committed to reducing Western Australia's total greenhouse gas emissions by 60 per cent of 2000 levels by 2050, consistent with the national target adopted by State and Territory leaders at the April 2007 meeting of the Council for the Australian Federation.

Making Decisions for the Future: Climate Change describes initiatives that will contribute to Western Australia achieving this goal. One of the most important is the creation of the \$36.5 million Low Emission Energy Development Fund which will provide funding for low emission energy demonstration projects. While presenting many challenges, climate change also provides an opportunity for Western Australia to become a world leader in low emission technologies, creating new technical and manufacturing jobs and opportunities now and into the future.

Making Decisions for the Future: Climate Change outlines the State Government's commitment to reducing greenhouse gas emissions. However, if we are to reach our emission reduction goal and make our contribution to the global fight against climate change, a sustained and cooperative effort will be required across government, industry and the community.

Hon Alan Carpenter MLA
PREMIER OF WESTERN AUSTRALIA



WE need to act now for the future

The science is clear. Human activities such as fossil fuel use and land clearing are causing unprecedented increases in greenhouse gases in the atmosphere, and this change is heating up the planet. Higher global temperatures are melting polar and glacial ice fields, raising sea levels and reducing water resources, land productivity and biodiversity values.

The most recent report by the InterGovernmental Panel on Climate Change warns us to prepare for the increased frequency of droughts, floods and other extreme weather events.

It warns of increased deaths, disease and injury due to sea level rise and coastal erosion, heat waves, floods, storms, fires and droughts. Many species of plants and animals are at risk of extinction and the resilience of entire ecosystems is likely to be exceeded by the combination of impacts. World security may be threatened by falling agricultural yields and fisheries damaged by ocean acidification.

Production from agriculture and forestry is projected to decline over much of southern and eastern Australia by 2030 and the severe water supply problems we are already experiencing are expected to worsen. In Western Australia's unique biodiversity hotspots, thousands of species could be lost.

Last year, the authoritative international Stern Review concluded that there is overwhelming evidence that climate change presents very serious global risks and demands an urgent global response.

The Stern Review and many other international and Australian studies, have also determined that the benefits of strong, early action on climate change outweigh the costs.





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WIND POWERED DESALINISATION PLANT

On the 10 November 2006, the Premier opened the Emu Downs wind farm near Cervantes. The wind farm has an 80 MW capacity and is being used to power Australia's first major desalination plant at Kwinana, which delivers drinking water into Perth's public water supply system and helps us to avoid the severe water restrictions in place in many of Australia's eastern cities.

The Cervantes site for the Emu Downs project is positioned right next to the coast, an optimal location to take full advantage of the prevailing south west winds that are present nearly every day of the year.

The renewable energy used for the desalination plant avoids the emissions of over 220,000 tonnes of greenhouse gases into the atmosphere per year and makes the plant carbon neutral. The desalination plant produces 130 million litres of water per day - 17 per cent of Perth's requirements.

The Emu Downs wind farm has many benefits for the local region, from the creation of local jobs to the use of local goods and services. Also, unlike conventional energy generation methods livestock is able to graze under the turbines, resulting in a low impact on existing land uses.

The Emu Downs wind farm comprises 48 turbines (each with 1.65 MW generating capacity) and is a partnership between Stanwell Corporation and Griffin Energy.

STATE Government action to date

Since 1998, the Indian Ocean Climate Initiative has been providing scientific research and advice on climate change in our region.

The State Government has long recognised the threat that climate change poses to Western Australia and released the comprehensive Western Australian Greenhouse Strategy in September 2004 to provide leadership in this vital area.

Recognising that the stationary energy sector is the biggest and fastest growing source of greenhouse emissions in Western Australia, the Government established a high level independent Greenhouse and Energy Taskforce to examine strategies for reducing emissions from this sector. Their report has informed this statement and further Government responses to the recommendations are being considered.

Consultation on the development and implementation of climate change policy is facilitated through the broadly representative High Level Stakeholder Group that the Government established in 2004, following the release of the Greenhouse Strategy.

Cleaning up energy generation in Western Australia

- Replacing diesel fired power stations in Broome, Derby, Halls Creek and Fitzroy Crossing with stations that generate energy using liquefied natural gas, which is a cleaner and more environmentally responsible option.
- Commissioning the \$400 million NewGen Kwinana Power Station, which provides power using gas technology and will produce half the greenhouse gas emissions of a traditional coal fired power station.
- Implementing a policy to secure natural gas from the Gorgon Liquefied Natural Gas (LNG) project and future LNG projects for domestic use.

Working with industry to reduce emissions

- Requiring the Gorgon LNG project to undertake the largest carbon capture and storage initiative in the world by reinjecting the carbon dioxide content of the gas underground into permanent geological storage.
- Committing to the exploration of clean coal technologies in the 2004 Coal Futures Strategy.

TRAVEL SMART PROGRAM

The population of Perth is expected to grow to two million by 2029 and, with car use increasing faster than population growth, traffic is projected to be double the levels of 1991. Unchecked, these trends would impose unsustainable pressure on the environment of Western Australia, contribute to climate change and inflict an increasing cost on households.

The TravelSmart Household Program was developed by the Western Australian Government to tackle Perth's increasing travel demand while addressing climate change, air quality, sustainability and physical activity issues.

The program shows people how to reduce their car use by 10 per cent, by substituting car trips with walking, cycling and public transport use.

To date 284,000 residents have taken part in the program. Each year this program reduces car trips by 20 million, takes 200 million kilometres off Perth's odometers, stops 60,000 tonnes of carbon dioxide entering our atmosphere and increases public transport patronage by 3 million.

TravelSmart demonstrates that many people making small changes can add up to a significant reduction in greenhouse gas emissions. The program also illustrates that the majority of the Perth population are ready to be part of the solution to climate change.

With participation set to rise to more than 450,000 residents by 2008/09, the TravelSmart Household Program is sure to achieve further environmental, social and financial benefits for Western Australians.



Investing in renewable energy

- Setting a target to achieve six per cent renewable energy on the South West Interconnected System (SWIS) by 2010.
- Funding wind farms in Esperance, Hopetoun, Bremer Bay, Exmouth, Denham and on Rottnest Island.
- Funding three cyclone-proof wind turbines at Coral Bay to supply more than 40 per cent of Coral Bay's energy needs.
- Funding a wind farm in Kalbarri.
- Powering the Kwinana Desalination Plant with renewable energy from the Emu Downs wind farm.
- Establishing the Solar Schools Program to install solar power in 100 primary and secondary schools across Western Australia.
- Providing rebates for the purchase of domestic solar hot water heaters.
- Introducing a transitional one cent per kilowatt hour subsidy for renewable energy to encourage the development of renewable energy projects.

Reducing the need for cars

- Almost doubling the size of the Perth rail network through building the new southern rail line, expected to take 25,000 cars off our roads.
- Spending more than \$72 million on cycling facilities and building more than 360km of cycling networks across Western Australia.
- Implementing the TravelSmart program to reduce the reliance on cars and encourage individuals to walk, cycle or use public transport.

Cutting emissions from government and private vehicles

- Progressively replacing the diesel bus fleet with compressed natural gas (CNG) fuelled buses.
- Participating in an international trial of hydrogen fuel cell buses, which emit no greenhouse gases at the tail pipe.
- Trialling the use of biodiesel fuel as an alternative to petroleum diesel in 78 buses.



- Introducing a subsidy to assist car owners convert to LPG fuel.
- Offsetting all the emissions of the Government car fleet.

Managing natural resources and vegetation

- Implementing the \$64 million Strategic Tree Farming program to abate greenhouse gas emissions, combat salinity, and provide wildlife habitat.

Responding to reduced rainfall

- Building a 45 gigalitre desalination plant in Kwinana, powered by renewable energy, to provide 17 per cent of the water required for Western Australia's Integrated Water Supply Scheme.
- Constructing the Burrup Desalination Plant to provide a resource for industrial use in the Pilbara.

- Building the Kwinana Water Recycling Plant to produce six gigalitres a year of high quality process wastewater for industry.
- Increasing statewide wastewater reuse from 2.6 per cent in 2000 to 13.6 per cent in 2006.
- Implementing the State Government Waterwise rebate initiative and granting 270,000 applications, with total savings of five gigalitres of water each year and 60 gigalitres over the life of the products.
- Reducing annual per capita consumption of water from the Integrated Water Supply Scheme from 183 to 155 kilolitres a person, through the Waterwise rebate initiative and the two-day a week sprinkler roster system.



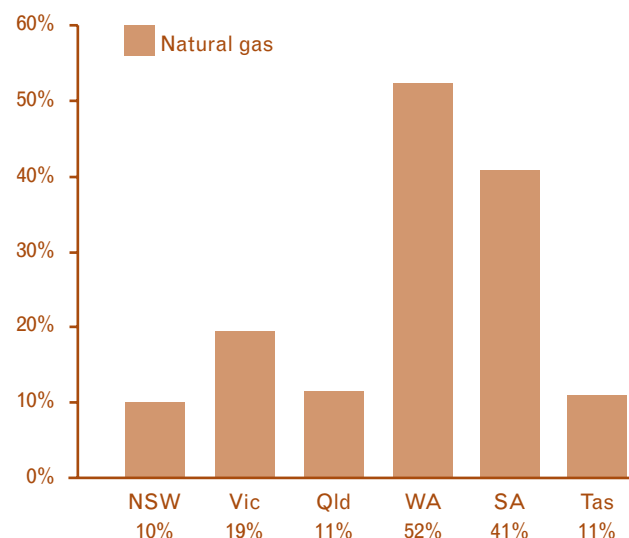
LEADING the nation in the adoption of natural gas

Western Australia has led the nation in the adoption of natural gas as a primary energy source for households and industry.

Unlike most other Australian States, which rely heavily on coal for their energy needs, Western Australia uses natural gas for the majority of its energy needs.

As an energy source, natural gas results in lower greenhouse gas emissions than oil or coal. Western Australia's greater use of natural gas has helped us to achieve lower greenhouse gas emissions per kilowatt-hour of electricity produced than any other Australian State, with the exception of Tasmania, which benefits from a significant hydro energy sector.

Natural Gas Share of Statewide Primary Energy Consumption (2006/07)



State	KgCO ₂ /kWhr
Tasmania	0.050
Western Australia (SWIS)	0.840
South Australia	0.865
New South Wales	0.893
Queensland	0.903
Victoria	1.239

Source: AGO Factors and Methods Workbook 2006

Source: ABARE



OUR goal to cut emissions by 60 per cent

The Stern Report warns, “climate change threatens the basic elements of life for people around the world - access to water, food production, health, and use of land and the environment.”

Worldwide scientific opinion suggests that global emissions cuts of at least 50 per cent by 2050 are required to reduce the risk of suffering extreme climate change impacts.

The world looks to high emission developed economies to make deep cuts in their greenhouse gas emissions. As a dynamic, resourceful, innovative society, Western Australia is well placed to lead the way in making such cuts. We also know that the sooner we act and make the necessary investments to build a low carbon economy, the lower the total cost will be and the sooner we will create the clean industries and jobs of the future.

Western Australia will play a leading role in the global effort to combat climate change. To provide a clear signal to all sectors about the scale of the challenge we are rising to, the State Government will adopt a long term goal to reduce Western Australia’s total greenhouse gas emissions by 60 per cent of 2000 levels by 2050, consistent with the national target adopted by State and Territory leaders at the April 2007 meeting of the Council for the Australian Federation.

Western Australia’s total greenhouse gas emissions were 66.6 million tonnes in 2005 (National Greenhouse Gas Inventory) and, at past rates of growth, will be approximately 71 million tonnes in 2007.

To meet our goal, Western Australia’s greenhouse gas emissions will need to be reduced to approximately 26 million tonnes per annum by 2050.

This commitment is a real commitment, but not a blind commitment. In adopting this goal, the State Government recognises that there are a great many uncertainties over such a timeframe and many factors beyond the State’s control.

In pursuit of this goal, the State Government will protect the Western Australian economy by not exposing energy intensive or trade exposed industries to substantial costs above those their competitors face. In addition, action taken in Western Australia should be commensurate with action taken elsewhere, as strong independent action in Western Australia would damage our economy, without any significant reduction in global greenhouse gas emissions.

MAJOR Initiatives

The State Government will act to reduce greenhouse gas emissions by 60 per cent of 2000 levels by 2050 through initiatives that:

- Constrain the growth in emissions in the short to medium term
- Achieve the low cost emissions cuts available from energy efficiency, and
- Encourage the development of the renewable energy sector, so that technologies are developed to deliver deep long term cuts in emissions.

Cleaner Energy Target

1 Western Australia has already made substantial progress in the increased use of cleaner energy, such as combined cycle gas, cogeneration and renewable energy. These energy technologies typically have half of the emissions from coal-fired power stations or less. Use of cleaner energy on the South West Interconnected System (SWIS) is currently at 43 per cent, up from 33 per cent in 2005.

The State Government will set an aspirational 50 per cent Cleaner Energy Target (CET) for the SWIS by 2010.

The State Government will work to increase the proportion of cleaner energy on the SWIS to 60 per cent by 2020 by continuing to work on emissions trading, supporting renewable energy and working to ensure that Western Australia has access to sufficient natural gas for domestic use.

Renewable Energy Target

2 The State Government is committed to the increased use of renewable energy as a readily deployable, safe, zero emissions technology that provides enhanced energy security.

The State Government will establish a Renewable Energy Target (RET) of 15 per cent by 2020, and 20 per cent by 2025 for the SWIS.



In doing so, the State Government will ensure that the target will be flexible to allow for technological developments, alternative abatement options and costs and related national initiatives such as emissions trading or an increased national renewable energy scheme.

State Government purchasing of renewable energy

3 The general government sector has committed to purchasing 20 per cent of its electricity from renewable energy sources by 2010.

Low Emissions Energy Development (LEED) Fund

4 The State Government will create a \$36.5 million Low Emissions Energy Development (LEED) Fund to promote emission reduction and support technological advances that cut greenhouse gas emissions.

(Above)
Wind turbines
Wind farms from Esperance to Kalbarri are providing clean renewable energy.

(Opposite)
White Gum Valley Primary School
White Gum Valley Primary School is participating in the Solar Schools Program.



The Fund will focus investment towards technologies where Western Australia has clear natural and competitive advantages, including geothermal, bioenergy and clean coal technologies and renewable energy technologies such as wind, wave, tidal and solar.

Matching contributions will be sought from industry and the Commonwealth Government.

While presenting many challenges, climate change also provides an opportunity for Western Australia to become a world leader in low emission technologies, creating new technical and manufacturing jobs and opportunities now and into the future.

Mandatory energy efficiency program

5 The State Government will work with industry to develop a mandatory energy efficiency scheme applicable to large and medium sized power consumers.

In developing the scheme, the State Government will seek to ensure that it is consistent with schemes being implemented in other States and at a national level.

Expanding the Solar Schools Program

6 The State Government will invest an additional \$4.1 million to more than triple the successful Solar Schools Program so that over 350 of the State's schools will use some renewable energy by 2010.

Household audit and education program

7 The State Government will invest \$1.5 million to establish a household audit and education program that will provide practical information on how greenhouse gas emissions can be reduced at the household level. The program will reach 10,000 Western Australian households and will address a wide range of environmental and lifestyle issues, including climate change, energy, water, waste and transport.

A free audit will be undertaken for participating households to identify opportunities to reduce emissions and energy costs, while also identifying waste, water and transport savings.

Adapting to the impacts of climate change

8 The State Government will invest \$8.625 million over five years to help Western Australia's industries, people and environment adapt to the unavoidable impacts of climate change.

As part of this initiative, research on the impacts of climate change will be boosted with a \$4 million investment into the successful Indian Ocean Climate Initiative, an innovative partnership between the State Government, the CSIRO and the Australian Bureau of Meteorology.

This investment will provide better projections of regional weather into the future to allow people and businesses, as well as State Government agencies, to plan and adapt to a changing climate.

Solar Schools

The Solar Schools Program trains our future leaders in the clean energy techniques of tomorrow. The existing \$1 million program will see 100 metropolitan and regional schools harness the renewable power of the sun with the installation of photovoltaic solar panels.

Students learn first-hand how photovoltaic (PV) panels turn the sun's energy directly into electricity. Having these facilities available in our schools enables teachers to easily communicate renewable energy concepts to students.

Students also learn about energy efficiency and the importance of reducing greenhouse gas emissions.

The Solar Schools Program enables the schools to generate some of their own electricity and reduce their consumption of fossil fuels. This makes the program not only educational but also good for reducing the schools' energy bills in the long term.



(Above)
**Harmony Primary School
 Atwell (Perth)**

Sustainability is designed into Atwell's Harmony Primary School situated in Perth's southern suburbs. The school's design makes use of the 'north facing' energy efficiency principle, has a computer monitored and controlled ventilation system, uses grey water for part of the school's reticulation system, has four rainwater tanks, a green waste recycling facility and has space set aside for a permaculture and herb garden. The design and building materials used allow for natural heating and cooling, keeping the buildings between 18°C - 25°C.

9 The State Government will develop a blueprint for agriculture and forestry adaptation to climate change. This will increase the resilience of agricultural crops and systems to cope with long-term climate change and seasonal variability and identify the necessary responses to climate change in Western Australia's native forest and plantation strategies.

National leadership on emissions trading

10 Western Australia has been working with the other Australian States and Territories through the Council for the Australian Federation (CAF) to design a national emissions trading scheme. A detailed design discussion paper was released for public comment last year.

The Western Australian Government considers the participation of the Commonwealth Government in a national scheme as essential if an emissions trading scheme is to provide the maximum certainty to participants.

However, the Western Australian Government will work with the other Australian States and Territories to introduce a national emissions trading scheme by the end of 2010 if the Commonwealth Government fails to make a commitment.

A specialised unit will be located within the Department of Treasury and Finance to lead this effort.

Climate Change Bill

11 The State Government will work with industry and other stakeholder groups to develop a Climate Change Bill that will establish a target for a 60 per cent reduction below 2000 levels in Western Australia's total greenhouse gas emissions by 2050, in line with the target established by the Council for the Australian Federation in April 2007.

The Climate Change Bill will include provisions that will:

- implement a mandatory energy efficiency scheme for large electricity consumers
- establish a frame work for Western Australia to participate in national emissions trading, and
- facilitate the implementation of other State Government climate change initiatives.

Separate legislation will be introduced to establish a geothermal energy industry in Western Australia.

Minister and Office of Climate Change

12 The State Government has appointed a Minister for Climate Change and will create an Office of Climate Change to drive the implementation of *Making Decisions for the Future: Climate Change* initiatives.



A GEOTHERMAL Future

Geothermal energy provides an emissions-free baseload energy alternative to nuclear and fossil fuels.

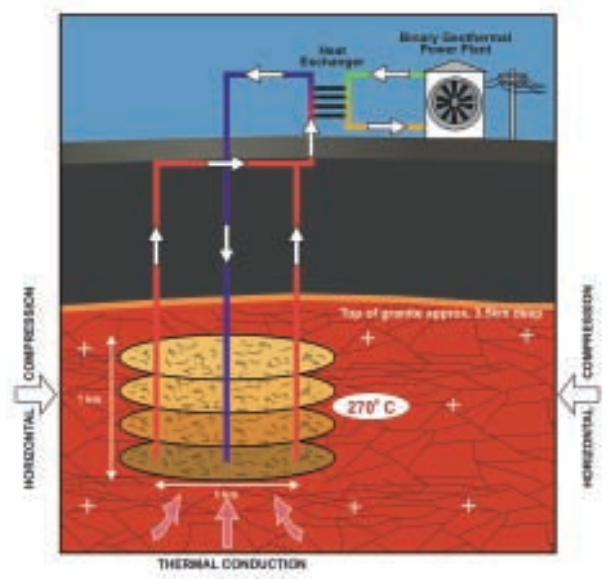
Around the world, geothermal energy already provides direct heat and power generation in more than 30 countries.

A 1994 study by the Australian Government's Energy Research and Development Corporation identified Australia as having extensive hot dry rock resources with the potential to generate Australia's existing electricity needs many times over.

Research conducted by the Australian National University has identified a number of Western Australian sites as potential hot dry rock resources, including resource areas located from Carnarvon to Exmouth and surrounding Geraldton, Bunbury and Broome.

The State Government is working to further develop Western Australia's geothermal resources by establishing the \$36.5million Low Emissions Energy Development Fund, which will provide funding to a range of low emission energy demonstration projects.

In addition, the State Government is working with industry to create the regulatory framework necessary for the development of a geothermal energy industry in Western Australia.



Images supplied courtesy of Geodynamics Limited



(Above)
Methane use or destruction
Captured methane gases can be used to generate electricity which could be sold into the central power grid.

OTHER Initiatives Business and Industry

Preparing Western Australia for an emissions trading scheme

13 The Western Australian State Government will consult with business and industry over the next two years to assist businesses to become familiar with emissions trading and prepare the State for the introduction of a national emissions trading scheme.

The State Government will seek to work in partnership with industry groups including the Chamber of Commerce and Industry and the Chamber of Minerals and Energy. In addition, the State Government will work with Western Australia's agricultural and forestry sectors to develop a workable system for biosequestration.

Emission reduction strategies for key sectors of the economy

14 Through the Office of Climate Change, the State Government will develop emission reduction strategies in partnership with key sectors of the Western Australian economy, including transport, housing, minerals, agriculture, manufacturing and service enterprises.



Demonstrating the capture and storage of carbon dioxide

15 The State Government will seek to establish a tripartite program with the Commonwealth, clean coal project proponents, LNG project proponents and other relevant industries to perform a detailed identification and assessment of potential carbon dioxide geosequestration sites in Western Australia.

Capturing greenhouse gas emissions from landfill sites

16 Landfill sites are a significant source of methane, a potent greenhouse gas. According to the Australian Greenhouse Office, methane emitted from landfill sites in Western Australia could be contributing up to 19 million tonnes of carbon dioxide equivalent, or 2.5 per cent of Western Australia's total emissions.

The State Government will require landfill sites to capture and use or destroy methane gas emissions. In many instances, these gases could be used to generate electricity, which could be sold into the central power grid.

The State Government will consult with local government and other relevant stakeholder groups in the implementation of this initiative.

NARROGIN BIOENERGY DEMONSTRATION PLANT

Using locally grown mallee trees, Narrogin's Integrated Wood Processing (IWP) demonstration plant can generate enough renewable electricity for 1000 homes, as well as produce activated carbon (used in air and water filters and industrial processes) and eucalyptus oil. Yielding three products ensures a commercially competitive operation.

This 'world first' technology essentially operates by processing the mallee trees to generate electricity. As the mallee trees sequester carbon dioxide the process is 'carbon-neutral' and displaces electricity generated from fossil fuels.

Mallee trees were selected for this project as they actively combat salinity and the branches can be harvested every second year for an indefinite period without replanting, making them an ideal renewable energy source.

POT RECYCLERS –WASTE MANAGEMENT

It is estimated that the nursery and gardening industry contribute 100 million plastic plant pots to landfill in Western Australia each year, equivalent to approximately 8,000 tonnes of waste material.

Pot Recyclers is a Western Australian based firm that has patented a unique technology to recycle plastic (polypropylene) plant pots. The technology shreds and granulates the pots into raw plastic resin, which is then converted by local manufacturers into new products including garden rakes, paint trays, soak wells and new pots.

The technology has significant greenhouse gas saving capabilities, with one tonne of recycled pots avoiding the emission of up to 3 tonnes of greenhouse gases.

Since Pot Recyclers began in 1997, the company has received awards including a Waste Management / Minimisation Award (2004) and a \$37,000 grant from the Waste Management Board, the 2004 Plastics and Chemical Industry National Environment Award, and it was the overall winner in the 2004 SGIO Western Australian Environment Awards.

Over 100 million pots have been diverted from landfill with the establishment of more than 30 collection sites around Perth. Moving forward, the company is poised to significantly reduce the environmental impact to landfill sites and the consumption of resources, while saving water and reducing greenhouse gas emissions.



OTHER Initiatives Household and Community

Introduce new energy and water efficiency standards for homes

17 In 2006, the State Government introduced the 5 Star building standards to minimise energy use in the heating and cooling of homes. The new 5 Star Plus standards will be implemented on 1 September 2007, and will require new houses in Western Australia to incorporate minimum energy and water efficiency measures, that will include:

- Solar or 5 Star gas (or heat pump) hot water systems
- Water efficient (i.e. 3 star WELS-rated) shower heads
- Water efficient (i.e. 4 star) tap fittings in all kitchen sinks, bathroom basins and vanities
- Water efficient (i.e. 4 star) dual-flush toilets
- Pool blankets for all new pools to reduce the rate of evaporation
- Plumbing to toilets to allow for alternative water supply at a later date (Stage 2)
- Plumbing drainage to allow easy recycling of grey water at a later date (Stage 2), and

- Alternative water supply (such as rainwater tanks) for flushing toilets and for washing machines where single dwellings are located on larger lots.

Ensure solar efficient lot design

18 The State Government will ensure future subdivisions are designed to make it easier to build solar efficient housing.

Continued Waterwise promotion

19 The State Government will continue to promote the recently revised Waterwise rebates, on items including:

- Plumbed and un-plumbed rainwater tanks
- Greywater re-use systems
- Waterwise irrigation systems
- Swimming pool covers
- Water-efficient washing machines
- Rain sensors
- Bores
- Sub-surface irrigation systems, and
- Flow control regulators.



ELEMENTS SUSTAINABLE DISPLAY HOME

The *Elements* display home, situated at the Harvest Lakes residential estate in Atwell, was jointly developed by the State Government's land development agency, LandCorp, and National Homes.

Harvest Lakes is Western Australia's first large-scale 'GreenSmart Estate', designed to minimise our impact on the environment. The Estate was also created as a 'Liveable Neighbourhood', maximising the human values of the village.

The *Elements* display home is expected to produce savings of at least 40 to 50 per cent of the baseline standard for WA homes, based on the water and energy efficiency components designed into the home.

The energy efficiency components built into the *Elements* home include:

- passive solar design principles such as room orientation and highlight windows in the main living areas to maximise natural light
- a solar pergola on the northern windows - allowing the sun to penetrate during winter and provide shade in summer
- a 300L gas boosted solar hot water system
- a Smart Power meter and highly rated energy efficient appliances
- vented gables, a whirly bird to enhance roof ventilation and a night purge fan to cool the home
- roof, ceiling and wall insulation, and
- smart wiring, external sensor lighting and software - to monitor the internal and external temperatures of the home and adjust the louvre windows for natural ventilation.

The water saving components built into the *Elements* home include:

- AAA rated showerheads and taps
- AAAA dual flush toilet cisterns and water sensitive kitchen and laundry appliances
- highline rainwater tank for rainwater storage and use, and
- landscaped waterwise gardens.

The *Elements* display home itself only cost \$180,000 to build and demonstrates how a home incorporating the key concepts of sustainability (water conservation, energy efficiency, liveability and resource and waste management) can be accessible and affordable to a wide range of Western Australians.

Encourage customer generated renewable energy

20 The State Government will continue to encourage the generation of renewable energy from grid-connected customers, including by working with utilities to reduce red tape and provide appropriate financial compensation for the energy generated.

Reducing waste to reduce emissions

21 The State Government recognises the significant greenhouse gas emission reductions that can be achieved through resource efficiency and recycling.

The Waste Management Board and the Western Australian State Government will continue to support a range of policy measures to improve resource efficiency and increase recycling in Western Australia.

In particular, these policies will focus on reducing the volume of waste sent to landfill and on improving efficiency and reducing greenhouse gas emissions throughout the entire lifecycle of consumer products.

Western Australia is committed to a sustainable transport future

22 The State Government will develop a Transport Emissions Reduction Strategy to further reduce greenhouse gas emissions from Western Australia's transport sector through a range of measures that will include the exploration of alternative fuels.

A one-stop shop for information on climate change action measures

23 The State Government will launch a new web portal to bring all State Government information on how households can protect the environment into one easy to use area. The website will include details of all related State Government rebates and programs.



OTHER Initiatives

State Government leading by example

Introducing a carbon 'price' into State Government decision making

24 By 2008, the State Government will apply a theoretical value to the cost of carbon and factor it into State Government decision-making. This will prepare the State Government for emissions trading and will provide incentives to reduce emissions and save energy.

Energy Smart Government

25 The State Government will continue its Energy Smart Government program, to provide case studies on what can be achieved in the wider community.

Reducing emissions through smart State Government purchasing

26 The State Government is a very large consumer of goods and services. Opportunities are likely to exist to reduce emissions and energy use through the development of procurement policies that take into account the greenhouse gas and energy use impacts of purchasing decisions. Purchasing of energy efficient appliances that are competitively priced will deliver the best value-for-money outcome.

(Above)

Hydrogen Fuel Cell Bus

One of Perth's most well-known alternative transport energy initiatives was the introduction of three Hydrogen Fuel Cell buses (EcoBuses) in September 2004. The EcoBuses have covered more than 160,000 km and carried more than 200,000 passengers since the trial began. In only two years, these buses have prevented 272 tonnes of greenhouse gases being emitted into the atmosphere.



CARBON NEUTRAL PROGRAM

Adjusting to a carbon-constrained society is about becoming energy efficient, and that is exactly what the Department of Treasury and Finance, in partnership with the Department of Environment and Conservation, is setting out to achieve with the Government's Vehicle Fleet Carbon Neutral initiative.

The Carbon Neutral initiative concentrates on two key elements to reduce the impact of vehicle emissions, fuel efficiency and offsetting carbon emissions by planting trees – carried-out in a partnership between the Oil Mallee Association and Men of the Trees.

This initiative is progressively changing the Government's vehicle fleet to four-cylinder cars, except where the use of larger vehicles or four-wheel drives is necessary (e.g. for use in remote regional areas). This saves money and fuel, while reducing the emission of greenhouse gases. Planting trees offsets the total remaining carbon emissions.

The beauty of initiatives such as the Carbon Neutral program is that the trees planted also help to address other environmental issues, such as salinity and the loss of habitat for wildlife, resulting in a win-win outcome for Western Australia's unique environment.

The State Government will undertake a comprehensive review of purchasing policies to identify areas where reduced greenhouse gas emissions and improved energy efficiency can be achieved in a cost effective way. This will include the development of a policy to ensure that all electrical appliances purchased by the State Government are energy efficient.

Improving the fuel efficiency of State Government vehicles

27 The State Government car fleet is now carbon-neutral, with four cylinder cars having replaced most six or eight cylinder cars and the fleet's emissions offset by a program of revegetation and other abatement measures.

The State Government will develop a new State Government vehicle fleet strategy aimed at further significant improvements in fuel-efficiency by 2010.

This strategy will help accelerate the uptake of fuel-efficient cars in Western Australia, reducing greenhouse gases, improving air quality and reducing Western Australia's dependence on oil imports.

Understanding future climate-related risks and opportunities

28 Climate processes affect water resources and agriculture, and are key factors in health, biodiversity, fishing, recreation, tourism, forestry and many industrial processes. The State Government will develop a risk management strategy to manage the effects of climate change on State Government services and the Western Australian economy.

