3. ENVIRONMENTAL SUSTAINABILITY AND CLIMATE CHANGE

The impacts of climate change are now being seen around the world.

The CSIRO has found that Victoria is already experiencing warming and projections show that Victoria is expected to warm at a rate slightly faster than the global average, especially in the north and east. The past decade has been exceptionally dry in much of Victoria, with average rainfall across metropolitan Melbourne 14% below the long term average. In the medium-term, temperatures will almost certainly continue to rise due to emissions that have already occurred, but reductions made now will lower the risks in the longer term.

The Government agrees with the AEG that urgent action is needed to increase the environmental sustainability of Melbourne in the face of climate change. The need to develop a broad-based discussion of the likely consequences of climate change and the choices available to the community is also supported. This has already begun with the Premier's recent Climate Change Summit and the development of a Green Paper/White Paper on climate change.

Integrated land-use and transport planning will be important to sustaining biodiversity across our metropolitan area, managing waste and water resources, and reducing Victoria's greenhouse gases at a time when the State's economic and population growth is driving up demand for energy, water and other resources.

Planning also plays a vital role in minimising the exposure of new developments and infrastructure to the effects of climate change, such as rising sea-levels and extreme weather-related events.

The Audit has indicated a clear need to:

- Drive significant reductions in greenhouse gas emissions from energy use in the built environment and transport.
- Make Melbourne, the surrounding cities and towns, and critical infrastructure more resilient to climate change impacts.
- Support development and use of renewable resources, recycling and re-use of resources, the efficient use of water, and protect water supply catchments.
- Manage urban development to avoid or minimise impacts on native flora and fauna, and link and protect areas of high environmental value.

ENVIRONMENTAL SUSTAINABILITY AND CLIMATE CHANGE PRIORITY ACTIONS AT A GLANCE

- Audit existing strategies and policies as part of a Green Paper/White Paper on Climate Change to ensure Victoria's policy settings are right for preparing industries, households and communities for the necessary change to a carbon-constrained economy.
- Develop a Victorian transport energy strategy to complement the Victorian Government's Green Paper/White Paper on Climate Change from 2009-10 onwards.
- Improve the long-term energy efficiency of Victorian homes, offices and other buildings by promoting higher energy performance requirements.
- Create financial incentives for the retrofitting of existing residential buildings through the *Victorian Energy Efficiency Target Scheme* to start in 2009.
- Facilitate investment in renewable energy infrastructure, and develop more targeted incentive and rebate programs.
- Ensure that land-use planning supports emissions reduction through the uptake of energy efficient and renewable energy options for the built environment (including through the design and location of buildings and activities and the design of subdivision layout).
- Update policies for the design, construction and retrofitting of buildings, transport systems and other infrastructure and the planning of existing and new suburbs to reflect the latest assessment of climate change risks.

ENVIRONMENTAL SUSTAINABILITY AND CLIMATE CHANGE
PRIORITY ACTIONS AT A GLANCE

- Accelerate and extend mapping of important areas of vegetation and habitats in Growth Areas and Green Wedges to avoid, minimise and offset any losses, and integrate planning for biodiversity into precinct structure planning in Growth Areas to provide greater certainty for future development.
- Review the implementation of the *BushBroker* program to ensure it continues to meet Government and stakeholder needs.
- Investigate options for establishment of a grassland reserve network to the west of Melbourne to protect high value areas and significant threatened native species.
- Work with councils and State agencies to identify opportunities to establish biodiversity areas/corridors on public and private land (such as along rivers and creeks) using the recently completed new biodiversity mapping.
- Increase diversion of materials from landfill and reduce greenhouse gas emissions from waste, through the *Metropolitan Waste Resource Recovery Strategic Plan* to be released in mid 2008, noting that consultation is underway on the draft Plan released in April.
- Continue to encourage water sensitive urban design in new developments, such as the use of third-pipe water systems, along with other measures to reduce Melbourne's water usage by 30% by 2015 on a per capita basis and increase water recycling to 20% by 2010.

Reducing greenhouse gas emissions

Reducing greenhouse gas emissions is imperative over the next 20 years to avoid dangerous levels of climate change.

The challenge is great given energy consumption in Victoria has doubled since 1973, and demand for electricity is increasing by approximately 2% per year.

Transport is the second largest category of greenhouse gas emissions, contributing about 16% of Victoria's total emissions, and emissions are growing rapidly as a result of population and economic growth.

The Government has commissioned an extensive review of the greenhouse gas emission reduction options across the entire Victorian economy. This modelling work shows that there is considerable potential to reduce emissions in the short, medium and long-terms, and that all sectors of the economy can contribute, including reduced energy use in buildings and transport. Better planning will be important in delivering many of these opportunities for emission reductions.

Driving emissions reductions

The Government has already:

- Set a target to reduce overall greenhouse gas emissions from 2000 levels by 60% by 2050.
- Set a target of a 10% reduction in household emissions by 2010.
- Mandated a minimum of 10% renewable energy use in Victoria by 2016.
- Introduced a new *Feed-in Tariff Scheme* to encourage more households to install solar photovoltaic systems.
- Strongly supported the introduction of a national emissions trading scheme as the most effective mechanism for influencing investment decisions across the economy to achieve emission reductions.

The Government will:

- Facilitate investment in renewable energy infrastructure, and develop more targeted incentive and rebate programs.
- Audit existing strategies and policies as part of a Green Paper/White Paper on Climate Change to ensure Victoria's policy settings are right for preparing industries, households and communities for the necessary change to a carbon-constrained economy.

Building energy efficiency

In 2005, Victoria was the first State in Australia to introduce the '5 Star' standard into Building Regulations. Over 100,000 new homes have now been built to the '5 Star' standard, with around half of these incorporating solar hot water systems to reduce greenhouse gas emissions. The '5 Star' standard for thermal building fabric has now been extended to home alterations and additions.

The Government will:

- Improve the long-term energy efficiency of new Victorian homes, offices and other buildings by promoting higher energy performance requirements.
- Create financial incentives for the retrofitting of existing residential buildings through the *Victorian Energy Efficiency Target Scheme* to start in 2009.
- Increase the Government's use of Greenpower to 25% and reduce overall energy use in Government buildings by 20% below 2000 levels by 2010.

Land-use and transport

Land-use planning guides urban form, street and neighbourhood layout, solar orientation of lots, diversity of development and building type. All these factors influence the amount of energy used to run a home or building, and the choices we make on whether to walk or drive to the local shops. Practical transport choices must also be supported by infrastructure improvements in the metropolitan area that encourage walking, cycling and use of public transport.

The Government will:

- Develop urban design standards that build on the 'Neighbourhood Principles' in *Melbourne 2030* to promote walkable and less car-dependent communities in both existing and newly developing areas.
- Ensure that land-use planning supports emissions reduction through the uptake of energy efficient and renewable energy options for the built environment (including through the design and location of buildings and activities and the design of subdivision layout).
- Develop a Victorian transport energy strategy to complement the Victorian Government's Green Paper/White Paper on Climate Change from 2009-10 onwards.
- Consider bio-fuels and electricity from renewable sources for the transport sector where this will reduce greenhouse gas emissions.

Engaging with the local government sector, stakeholders and communities

The Government recognises the importance of engaging key stakeholders and the broader community to enable the appropriate application of climate change information to decision-making. The Government works collaboratively with councils across the State through the *Victorian Local Sustainability Accord*. The Accord aims to strengthen cooperative efforts between the two levels of government in the delivery of local and state-wide sustainability objectives.

The Government will:

- Provide new regional climate change projections and information on coastal vulnerability to support engagement and decision-making at local and regional levels.
- Support pricing regimes and rebate programs that give Victorians an incentive to save resources and reduce energy and water consumption.
- Produce energy efficient home designs that are affordable to the average family through the *Sustainable Affordable Housing Design Project*.
- Invest in local government sector initiatives to mitigate climate change and address sustainability, through the *Victorian Local Sustainability Accord.*
- Work with councils to overcome barriers to investment in energy efficient public lighting.

Adapting buildings and infrastructure to climate change

Strategic, long-term planning will play a vital role in minimising the exposure of buildings and infrastructure to the effects of climate change.

Related AEG Recommendation

The Government's commitments and directions in *Planning for all of Melbourne* address and respond to this recommendation from the independent *Melbourne 2030* Audit Expert Group.

Working towards sustainability (AEG Recommendation 5.1)

That the State Government and local government take urgent action to increase the environmental sustainability of metropolitan Melbourne.

This can be achieved by:

- Developing strategies for addressing climate change mitigation and adaptation through a broad-based discussion of the likely consequences of climate change and the choices available to us as a community.
- Establishing benchmarks and targets for reduced greenhouse gas emissions, use of potable water and recycled water, and waste minimisation.
- Informing the public about full-cost pricing and user-pays policies for services such as waste disposal, water, energy and road use to ensure that those who use scarce resources or contribute to global warming are responsible for the associated costs.
- Strengthening demand management mechanisms for energy and water, including building on the existing five star energy rating to create higher energy rating standards for new residential developments and to introduce them for commercial development.

Coastal areas

The coast is an area of particular risk. The Government is undertaking the *Future Coasts* program (due to be completed by 2009), a major research project to assess the vulnerability of Victoria's coastal zones (including metropolitan Melbourne's coastal zones) to climate change risks such as storm events, sea level rise, coastal inundation, erosion, flooding and salt water intrusion. The project will help improve planning for the location and design of future coastal development and associated infrastructure.

The Government will:

- ► Apply the findings of the *Future Coasts* program in the development of a coastal response plan.

Bushfire prone areas

Climate change will mean drier conditions for Victoria, and ultimately increased risk of bushfires. In 2003 and 2006 Victoria experienced two of the worst bushfire seasons in a century.

Development at the fringe of Melbourne and surrounding regions will be at increased bushfire risk, as bushfire seasons lengthen and average rainfall levels decline.

The Government will:

- Review the policies, regulations and guidelines applying to the location and design of new fringe settlements or extensions to existing settlements in fire prone areas to improve safety.
- Complete a review of the *Residential Tenancies (Caravan Parks and Movable Dwellings Registration and Standards) Regulations* to consider the implications for construction of buildings in bushfire prone areas.

Urban infrastructure

Climate change is also likely to affect a wide range of urban infrastructure through increased rates of deterioration or direct structural damage through higher temperatures and humidity, stronger winds and greater risk of subsidence and flooding. This could include buildings and other urban facilities such as roads, bridges, tunnels, airports and ports, sewer and drainage pipelines and electricity transmission lines.

The Government will:

- Update policies for the design, construction and retrofitting of buildings, transport systems and other infrastructure and the planning of new and existing suburbs to reflect the latest assessment of climate change risks.
- Incorporate climate change risk assessment and responses into Victoria's planning system through the strengthening of existing policy and new planning policies and tools where required.
- Revise the *Precinct Structure Planning Guidelines*, used by the GAA to guide the planning and design of new communities, to address a range of climate change risks such as longer and more intense bushfire seasons and more extreme flood events.

Sustaining biodiversity

Continuing rapid urbanisation has the potential to decrease both the quantity and quality of native flora and fauna habitat.

Approximately 7% of the area within Melbourne's Urban Growth Boundary (UGB) in which new development is occurring is covered by retained native vegetation. Changes have been made to the way the Government's Native Vegetation Framework is applied within the UGB to reduce uncertainty and address concerns about impacts on land development while ensuring that there are improved outcomes for biodiversity.

The Framework will apply at the Precinct Structure Plan (PSP) stage of growth area planning with Native Vegetation Precinct Plans (NVPP) being prepared in parallel with and incorporated into the approved PSP. This revised approach will be constantly monitored to ensure it meets both industry needs and Government objectives with respect to development and biodiversity management.

The *BushBroker* program, which facilitates the buying and selling of offsets for any native vegetation once approval has been granted for clearing, reduces compliance costs for developers and provides sellers of offsets an income stream for protecting and managing native vegetation on their properties.

The Government will:

- Work with the local government sector to prepare guidelines to assist councils to fully address biodiversity and ecosystem health outcomes through Municipal Strategic Statements and other planning mechanisms.
- Accelerate and extend mapping of important areas of vegetation and habitats in Growth Areas and Green Wedges to avoid, minimise and offset any losses, and integrate planning for biodiversity into precinct structure planning in Growth Areas to provide greater certainty as to future development.
- Investigate options for establishing a grassland reserve network to the west of Melbourne to protect high value areas and significant threatened native species.
- Work with councils and State agencies to identify opportunities to establish biodiversity areas/corridors on public and private land (such as along rivers and creeks) using the recently completed new biodiversity mapping.
- Review the implementation of the *BushBroker* program to ensure it continues to meet Government and stakeholder needs.

Managing waste and water resources

Waste reduction

By 2014, the Government's *Towards Zero Waste* strategy aims to cut waste generation by 12% (1.5 million tonnes a year); recover 75% of solid waste for reuse, recycling and/or conversion to energy; and reduce 2003 levels of littering by 25%.

While the targets are for the State, metropolitan Melbourne's role is significant because it is the source of some 70% of waste generated in Victoria and is home to three-quarters of resource recovery and reprocessing activity.

The Government will:

- Increase diversion of materials from landfill and reduce greenhouse gas emissions from waste, through the *Metropolitan Waste Resource Recovery Strategic Plan* to be released in mid 2008, noting that consultation is underway on the draft Plan released in April.
- Work through the Metropolitan Waste Management Group to increase opportunities for councils to achieve economies of scale in the provision of waste services, in particular, through planning and procuring services on a metropolitan-wide basis.
- Examine ways to improve recycling services in multi-storey development.

Water conservation and water quality

The demand for water in urban areas will continue to grow as the population increases but the ability to divert more water from catchments and rivers is limited. Many rivers have reached or exceeded their limits for providing water for consumption. Climate change is likely to reduce the water yield from our catchments even further.

Our Water Our Future: The Next Stage of the Government's Water Plan will reduce the vulnerability of our cities and towns in the face of drought and the challenge of climate change, by diversifying our water sources and using what we have more wisely.

The Government will:

- Construct a new desalination plant to provide water for Melbourne and its surrounding cities and towns. The plant will generate up to 150 billion litres of water per year and be completed by the end of 2011.

- Expand Victoria's Water Grid by constructing the Sugarloaf Pipeline which will transfer up to 75 billion litres of water saved from the vFood Bowl Modernisation Project to Melbourne. This project will be completed by the middle of 2010.
- Upgrade Melbourne's Eastern Treatment Plant to produce up to 100 billion litres of tertiary treated recycled water, which may be appropriate for non-potable residential, industrial, agricultural and environmental uses, by the end of 2012. The possibilities for using this water are being considered in a business case which will be completed by the end of 2008.
- Continue water conservation measures such as the *Water Smart Gardens* and *Homes Rebate Scheme* which contribute to Melbourne households using water more wisely and efficiently by providing a range of rebates for rainwater tanks, grey water systems and dual flush toilets.
- Continue to encourage water sensitive urban design in new developments, such as the use of third-pipe water systems, along with other measures to reduce Melbourne's water usage by 30% by 2015 on a per capita basis and increase water recycling to 20% by 2010.

In Melbourne Water's operating area, 28% of rivers and creeks are in good or excellent condition, 25% are in moderate condition, and 47% per cent are in poor or very poor condition. Generally, the condition of rivers and creeks closer to the city worsen due to run-off from buildings and roads, loss of vegetation, and litter.

Port Phillip Bay has been assessed as being in fair to good health across key indicators in the *State Environment Protection Policy* and other environmental measures. Western Port, however, is a stressed ecosystem and faces on-going threats due to human activity (both farming and urban development).

The Government will:

- Review the current measures used to control sediment or nutrient release during construction or agricultural activity that could be linked to potential pollution of Western Port and Port Phillip Bays, and the streams and rivers feeding them.