



The Victorian Government

Building a sustainable future

A photograph of a modern building at night. The building features a prominent wooden deck and a long wooden bench. The interior lights are on, casting a warm glow. The sky is dark blue, and there are some lights visible in the distance. The text "Developing and growing a sustainable Victoria." is overlaid on the bottom left of the image.

Developing
and growing a
sustainable Victoria.

Building a Sustainable Future Welcome

Victoria is delighted to host the World Sustainable Building Conference which is being held in the Southern Hemisphere for the first time.

This gathering of the world's leading technical and industry experts and researchers on sustainable buildings is a great opportunity for us all to share and intensify our efforts to reduce the impacts of our buildings on the environment.

The challenge of building more sustainable communities has never been more urgent. Our climate is changing, our population is increasing, and our levels of consumption are growing.

Melbourne regularly tops international lists as one of the most liveable cities in the world, and by becoming a leader in sustainable buildings we can help keep it that way.

With around one third of Victoria's greenhouse emissions caused by how we live and work inside our buildings there is significant scope for improvement.

Expert analysis has found that emission reductions of 30% can be achieved in the short term to 2020 through cost-effective measures for both new buildings and retrofits

and renovations of existing buildings, involving better design and choice of materials and incorporation of available energy efficient and renewable energy technologies.

That's why our Government is pursuing a range of measures to improve the performance of existing and new buildings. In particular, we are considering ways to improve the sustainability of our homes through enhanced building standards, and opportunities to further improve the energy efficiency of government owned and leased buildings, to help drive industry transformation.

Our decision to lease or purchase minimum 5 Star Green Star new office accommodation is already having a big impact on the premium building market, with Melbourne's Docklands now boasting the greatest concentration of green buildings in Australia.

By giving strong incentives to savvy market leaders for more sustainable building products and services, Victoria can do more than raise minimum standards: we can be leaders in green buildings.

Improving the greenhouse performance of our built environment provides us all with a buffer against rising energy and water prices, and this will be particularly important for us in Australia as we embark on an emissions trading scheme.

In this context the Victorian Government has an important role in the design and delivery of appropriate state level sustainable buildings policies and programs that are complementary to an emissions trading scheme.

The Victorian Government's Energy Saving Campaign - better known as the Black Balloons Campaign and adopted by former US Vice President Al Gore to help drive community awareness of greenhouse pollution in America, is raising public consciousness, with over 70% of Victorians now more mindful of energy use than a year ago.

SB08 will help us turn this greater awareness into comprehensive action in our homes, buildings and communities.



Gavin Jennings MLC
Minister for Environment
and Climate Change



Justin Madden MLC
Minister for Planning



Low carbon homes

Victorians are great recyclers, water savers and supporters of GreenPower, but we need to go further to reduce the impact of our homes on the planet.

We can ensure that Victorians get long term value when they invest in a new home or major home renovations, by continuing to improve building standards that reduce water and energy. These homes will still be in use in 2050 so we need to be building now for a low carbon future.

5 Star and beyond

Victoria led the nation in introducing 5 Star building standards for new homes in 2004, and now wants strengthened Australian building standards by 2010.

More than 100,000 houses have been built in Victoria under the 5 Star standard, helping save some 2 million tonnes of greenhouse emissions over 10 years - the equivalent of taking half a million cars off the road.

Analysis has shown that these homes use 50% less energy for heating and cooling compared with the typical 2 Star predecessor.

For individual households, there are significant benefits in terms of reduced energy bills with a three to six year payback on investment in the 5 Star thermal performance of their new home. For the community as a whole, there are significant savings arising from deferred construction of new electricity and gas generation capacity, reduction in greenhouse gas emissions due to lower energy usage, deferred need

for new water sources, and contribution to stormwater peak flow and pollution abatement.

But there is still room to do more. Leading developers in Victoria are already building higher performing new homes and some jurisdictions internationally are setting standards for new homes at the level of 7 Stars and higher.

A generational step

A Second Generation package to broaden the residential building standard by 2010 is the next step towards lowering the carbon emissions from our new homes.

Improvements under consideration include:

- Increasing the thermal efficiency of the building fabric, including increased requirements for larger homes
- Introducing a lighting energy efficiency standard
- Setting a low greenhouse emission standard for hot water heaters in all new homes
- Increasing water efficiency standards and addressing storm water impact management.

Improving the performance of existing homes

By 2050, around 55% of Victoria's homes will still pre-date the 5 Star building standard, representing a major challenge to improving the overall energy and water performance of our housing stock.

To help more Victorians reduce their household impacts, a \$3.5 million campaign will tap into established community and social networks to drive change in 100,000 homes.

The *ResourceSmart Hubs* will recruit local clubs, associations and other community bodies to motivate households throughout metropolitan and regional Victoria.

This groundswell of neighbourhood action aims to reduce household emissions by up to 200,000 tonnes of CO₂.

We are also investing heavily in greener practices in all homes, with significant water and energy appliance rebates. This financial year alone, almost \$17 million will be rebated for green products, including insulation and solar hot water rebates.

On the regulation front, the Victorian Government now also requires all major renovations to existing homes to meet the 5 Star building fabric standard, which is generating improvements across the established housing market.





A serious solar boost

Households in regional and rural Victoria are being encouraged to switch to solar hot water with a new rebate of up to \$2500.

This makes an upgrade to solar hot water cost less than the normal replacement cost of an electric or gas hot water system.

The rebate commenced in June this year. In its first three months, over 800 rebate applications were received. To support the rebate roll-out, plumbers are being offered specialised training. Over 380 have completed the Green Plumber course since June.

Country Victorians who make the change to solar can expect to save around \$245 off their electricity bills each year.

The rebate assists households to lower their energy costs by shifting to solar hot water systems that are cheaper to run, as well as contributing to reduced greenhouse gas emissions.

The rebate is being made available for the installation of gas/solar systems or electric/solar systems where reticulated gas is not available.



Victoria's Energy Efficiency Target scheme

From January 2009, energy retailers in Victoria will be required to work with customers to help improve the energy efficiency of their homes and reduce their greenhouse emissions.

Victoria's Energy Efficiency Target (VEET) scheme aims to reduce 8.1 million tonnes of CO₂ – the equivalent of making 675,000 households carbon neutral for a year.

Under the scheme, energy retailers will support a range of activities, such as providing energy efficient light bulbs and incentives for installation of insulation, and the replacement and upgrading of heating and hot water systems with lower emissions alternatives.

Greener appliances and services

Many Victorians want to do more as individuals and businesses to reduce everyday environmental impacts, but aren't sure where to start. Networks of accredited assessors capable of offering accurate, effective and impartial advice in the home or office are needed.

Victoria is working with industry and the training sector to look at ways to increase the number of 'sustainability assessors', as well as rolling out an expanded regional

training program which aims to reach over 1500 green plumbers.

One of the biggest energy wasters in our homes are appliances with standby energy consumption, accounting for around 10% of the average home's energy bill.

Victoria, along with other Australian governments, is working through the national *Minimum Energy Performance Standards* (MEPS) program to reduce the energy consumption and standby power, of household appliances.

MEPS for set top boxes and external power supplies are scheduled to be introduced in December 2008. By Christmas 2009, it is anticipated that TVs will also be required to carry energy rating labels and will be subjected to MEPS which will cover both standby power and in-use energy consumption. An initial voluntary energy labelling scheme for TVs was announced in June 2008, and the first labelled TVs are expected to start appearing in stores around October this year.

This important program is helping to get inefficient appliances off the market. Over the next 18 months, further new standards are scheduled to be introduced for gas water heaters, commercial air conditioning chillers, incandescent lamps and compact fluorescent lamps, so that households and businesses will have greener choices when it comes to replacing or upgrading equipment.



Supporting low income households

Low income households spend a higher percentage of income on energy bills and will need greater support with the introduction of Australia's proposed *Carbon Pollution Reduction Scheme* (CPRS) in 2010. The Commonwealth has made a commitment to minimising the impact of the CPRS on low income households.

Victoria strongly supports the introduction of the CPRS and has a role to play in the design and delivery of policies and programs that assist households to adjust to carbon pricing.

A \$2 million investment in *Climate Change Proofing Low Income Households* will build on Victoria's efforts to date to provide a lasting buffer from rising energy and water prices to low income families, and deliver real greenhouse reductions.

The new program aims to reach 21,000 households in regional Victoria, abating some 18,000 tonnes of CO₂ emissions and saving \$2.8 million on household energy bills.

The program will involve community organisations and local government working with residents in social housing to improve the energy efficiency of homes.

It will also create green jobs in the community and encourage social enterprises with lasting benefits.

The climate-proofing initiative builds on the success of Victoria's *Energy and Water Taskforce* that has retrofitted 4,700 homes in 25 disadvantaged communities so far. The Government provided an additional \$4 million in 2008 to expand this program.

This will bring the total number of households to receive assistance over the next four years to more than 8,000. With tailored advice on heating, lighting and other simple, smart efficiency measures, this has helped reduce electricity bills by 16% and gas bills by 9%, and importantly, worked with the community to train unemployed local residents to become Home Sustainability Assessors.

A further initiative has delivered the most environmentally sustainable public housing development in Australia. The 96 apartments at K2 in Windsor use half the electricity, gas and water of standard apartments.



Housing that supports the homeless and the environment

A supportive housing facility for 120 long term homeless people will be built on the edge of Melbourne's CBD using environmentally sustainable design (ESD) principles.

Based on New York's *Common Ground* model that has reduced street homelessness in New York by 25% since 2005 – the Melbourne project is the result of a unique partnership between the Lord Mayors Charitable Fund, Melbourne builder Grocon, Yarra Community Housing, Common Ground and the Victorian Government.

Profits from *SBO8* and donations made by delegates will go towards the green design and fit-out of the facility at 660 Elizabeth St, which will include housing, health services, training and employment help on-site.

The cost of the development is expected to be up to \$50 million subject to final design, and Grocon has undertaken to construct the project at cost price using ESD principles. ESD features being investigated for inclusion are: a green roof, automated/operable louvers, grey/black water treatment, and a high performance glass façade.



Sustainable communities

Since *Melbourne 2030* was released more than five years ago, the pressures of growth and the challenges of climate change have increased. One million more residents are now expected to live in Melbourne about a decade earlier than originally forecast in 2002.

Planning for all of Melbourne, the Government's response to the first five-year audit of *Melbourne 2030*, identifies environmental sustainability and climate change as one of four priority areas for action.

\$6 million will be invested over the next four years to develop up to four prototype Victorian communities that showcase low emission lifestyles.

Innovative water, waste, transport and energy solutions will be demonstrated at a community level to abate up to 100,000 tonnes of greenhouse gas.

The *Zero Emissions Zones* program will involve partnerships with housing developers in new developments to leverage private investment in market-leading developments.

This is an extension of Victoria's *Smart Energy Zones* program that is working to design new developments and retrofit established urban areas with a range of energy solutions such as renewable energy, energy efficiency, micro-generation and combined heat and power systems, by incorporating water, waste and transport solutions.

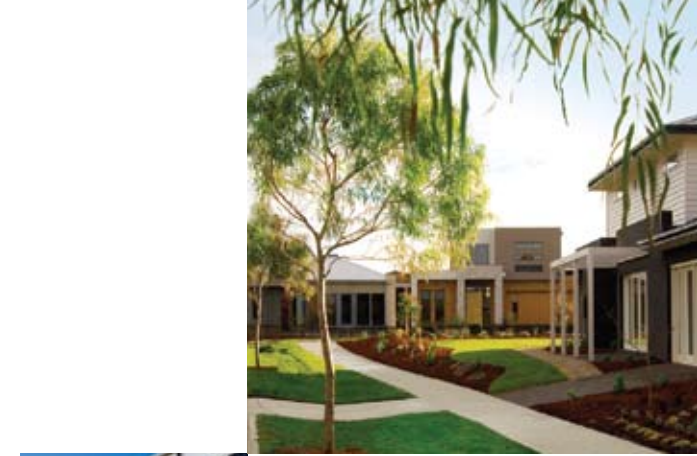
Sustainability approaches are also being embedded in new precinct planning guidelines for Melbourne's fastest suburban growth areas. This means climate change impacts can be planned for at a suburb-wide level, so that optimal solar orientation, biodiversity protection and innovative technologies such as distributed energy generation and storm water recycling, are planned from the beginning.

A number of exciting developments are underway in Victoria that showcase the best in urban planning.

The State's urban development authority, VicUrban, is leading by example through developments such as Dandenong Creek Residential, where a former sewage plant is being restored to wetlands and orchards with up to 280 6 Star rated homes.

At Armstrong Creek in the regional city of Geelong, the Government is working with the local council and developers to investigate options to reduce greenhouse emissions and make significant environmental gains with minimal cost. There is the potential for new homes to be powered by solar, wind, geothermal, biomass, cogeneration and natural gas options.

VicUrban is also collaborating with the Office of the Victorian Government Architect on a range of affordable architecturally designed 7 Star energy rated homes for the volume home market.



Helping business do what they do best

Our workplaces and commercial buildings are major users of energy and water, presenting great opportunities to reduce environmental impacts at low cost.

Research commissioned by the Victorian Government indicates that greenhouse emissions could be reduced significantly from commercial buildings through higher efficiency fittings, systems and equipment and improved design and thermal performance in new buildings. For example, emerging lighting technologies alone have the potential to reduce commercial electricity consumption by 15% in the short term. Over the medium to longer term, improvements to the building envelope and heating, ventilation and cooling systems have the potential to reduce emissions by 25%.

Melbourne's Docklands now has the greatest concentration of green buildings in Australia, while buildings such as the City of Melbourne's CH2, 40 Albert Road, 500 Collins Street, and the Government's own office accommodation at 50 Lonsdale and 121 Exhibition Streets are helping lift the standards across the commercial district.

Victoria supports strengthened national standards for non-residential buildings and will work through the Australian Building Codes Board to implement these by 2010 as a basis for accelerating market transformation.

Alongside standards for new buildings, Victoria and other jurisdictions are

investigating national regimes for the disclosure of commercial building energy performance at point of sale or lease and similar schemes for residential buildings. Information about the energy performance of buildings helps owners and tenants make informed choices about the buildings they work in and helps drive the commercial building sector to see the value in going green.

Regulation alone is not the answer. Victoria is also actively embracing the national *CitySwitch* program. Since commencing in mid 2008, the program is already working with businesses in central Melbourne who are tenants of commercial buildings to reduce their greenhouse emissions. The program highlights the opportunities for tenants to make a difference - they can influence up to 50% of the total energy use in office buildings. Commercial tenants signing on to *CitySwitch* commit to achieving at least a 4 Star NABERS energy rating. This can be achieved through simple, easy to implement actions such as: installing energy efficient lighting and office equipment; purchasing GreenPower from renewable sources; and educating staff on the benefits of energy efficiency.

During 2009 the Government will support an expansion of the *CitySwitch* program, to be delivered in partnership with local councils in metropolitan Melbourne and regional centres.



Government leading by example

The Victorian Government is 'demonstrating by doing' in the way it builds, owns, operates, leases and equips its buildings on behalf of Victorians.

Victoria's support for environmental rating tools such as NABERS and Green Star, and the requirement for all new government offices to achieve a minimum 5 Star standard has brought a wave of green commercial developments to Melbourne.

From the commissioning of new architectural public spaces to the purchase of everything from office equipment to over 300 hybrid cars, the Victorian Government is using its considerable annual purchasing power to drive better environmental outcomes for the long-term.

By 2010-11, a quarter of all power purchased for government buildings will be from renewable sources.

To take this to the next step the Government is developing enhanced whole of government policies for sustainable buildings and construction, aimed at further improving energy efficiency and reducing climate change impacts of government owned and leased buildings.

Already there are environmental specifications in key Whole of Victorian Government contracts, and environmental management plans are in place across all departments.

In April 2008, a formal Memorandum of Understanding was signed between Victoria and the *Clinton Climate Initiative* to build key partnerships to accelerate the retrofit of State Government buildings with energy saving technologies, as well as other opportunities including hybrid buses, low energy street lighting, alternate waste treatments, distributed energy and carbon capture and storage.

Energy performance contractors are helping to find low cost power and water savings in government owned buildings across Victoria, while green leasing schedules are improving the performance of leased offices.

Not just major city buildings, but local schools and hospitals and energy smart regions are demonstrating what can be done by taking a life-cycle approach.

The Government's \$5 million *Solar in Schools* program aims to support the installation of grid connected solar photovoltaic panels in schools and community facilities. The aim is for 500 installations in primary and high schools, sporting clubs, local councils and other community organisations by 2010. The program also supports the installation of interactive energy monitoring equipment and the community learning about renewable energy and energy demand. Already, some 50 schools and community groups have installed solar panels.

These measures are all having a positive impact in terms of greenhouse abatement.

Between 05-06 and 06-07, Victorian Government departments have reduced energy consumption by 6%, greenhouse gas emissions by 13%, paper consumption by 5% and water by 17%. The average waste generated per office worker is down 13%.

This is an important base to build on. We will extend our leadership in sustainable building and construction policies to reward market leaders and support industry transformation and the building of a green economy.

This leadership is vitally important in growing the green building industry in Victoria and driving skills development that supports market transformation.

New 6 Star Convention Centre

The new \$1.4 billion Melbourne Convention Centre development, being built under a Public Private Partnership model, is an example of what can be achieved when government and the private sector work together to deliver the highest environmental and architectural standards.

Opening for business in 2009, the new 5000-seat centre is one of the greenest convention centres in the world with a '6 Star Green Star' environmental rating.

Features include fresh air released at a lower level of the building rather than second-hand air pumped through the ceiling; natural light and energy-saving controlled lighting; solar panels; a black-water recycling plant to recycle waste water for use in toilets, cooling towers and to irrigate landscapes; and building materials sourced from renewable and sustainable industries.



Supporting industry and innovation

To help drive building innovation, transform industry practices and supply chains, and support jobs growth in sustainable building, the Minister for Planning and the Minister for Environment and Climate Change have invited leading practitioners to join them in an ongoing Industry Round Table process.

One of the key issues the Industry Round Tables will advise on is practical policy actions to boost trade skills as part of Victoria's development of our Climate Change White Paper. Victoria's Skills Statement, *Securing Jobs for Your Future - Skills for Victoria*, will be important in attracting more people to

training in trades where there is strong and unmet demand.

The Victorian Government has also contributed \$2.1 million to the establishment of a Plumbing Industry Climate Action Centre, a unique, industry-driven training facility. The centre is focused on green plumbing training and other skill development critical to the future of Victorian plumbing. It is being developed in partnership with the Plumbing Union, the Master Plumbers and Mechanical Services Association of Australia, the National Fire Industry Association and the Air Conditioning and Mechanical Contractors Association.

Along with initiatives such as *Ecosmart electricians* and the *Home Sustainability Assessors* program, more programs will be needed to green the attitudes, skills and practices of plumbers, electricians, engineers and builders.

Support for 'Green Collar' skills development will help grow Victoria's economy without sacrificing our environment. Working with industry and educational institutions and effectively using our existing green building industry will help Victoria become a world leader in green building technical knowledge and practical skills.

Supporting greener buildings through innovative local manufacturing

The new Viridian plant in Dandenong will introduce leading-edge production technologies to make e-glass, an energy efficient, globally competitive glass product that will help reduce domestic and commercial electricity and gas consumption. The Victorian Government has worked closely to support this \$133 million redevelopment that will position Victoria as the leader in these technologies for Australia. This is due to commence production in the first half of 2009, providing benefits for the Victorian manufacturing economy as well as addressing issues of energy efficiency and greenhouse emission reduction.

The Government has recently finalised a revised sustainability covenant signed by EPA Victoria, Sustainability Victoria, Viridian (the trading name of CSR Building Products) and the Australian Industry Group which obliges these four organisations to work with groups including Standards Australia, government building authorities and architects to encourage the use of energy-efficient glass.





By 2010-11, a quarter of all power purchased for government buildings will be from renewable sources.

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K2 Apartments

Inside Cover

DPI Queenscliff Centre

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Top - Aurora

Bottom left to right - *CitySwitch*,
K2 Apartments and Williamstown
High School

Page 2

Bottom left to right - Williamstown
High School, Building Commission
and Anglesea DSE Office

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Top - Anglesea DSE Office
Middle and bottom - DPI
Queenscliff Centre

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K2 Apartments

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Top - Aurora

Middle left - Williamstown High School
Middle right - Aurora
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Top - Sustainability Victoria Office
Middle left - SV Building
Bottom left to right - Building
Commission and Docklands

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Melbourne Convention Centre

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Left - DPI Queenscliff Centre

Right - Williamstown High School

Inside Back Cover

DPI Queenscliff Centre

Back cover

Top left to right - DPI Queenscliff
Centre and Anglesea DSE Office

Middle left to right - Energy
Saving Globe and CH2

Bottom - Building Commission

