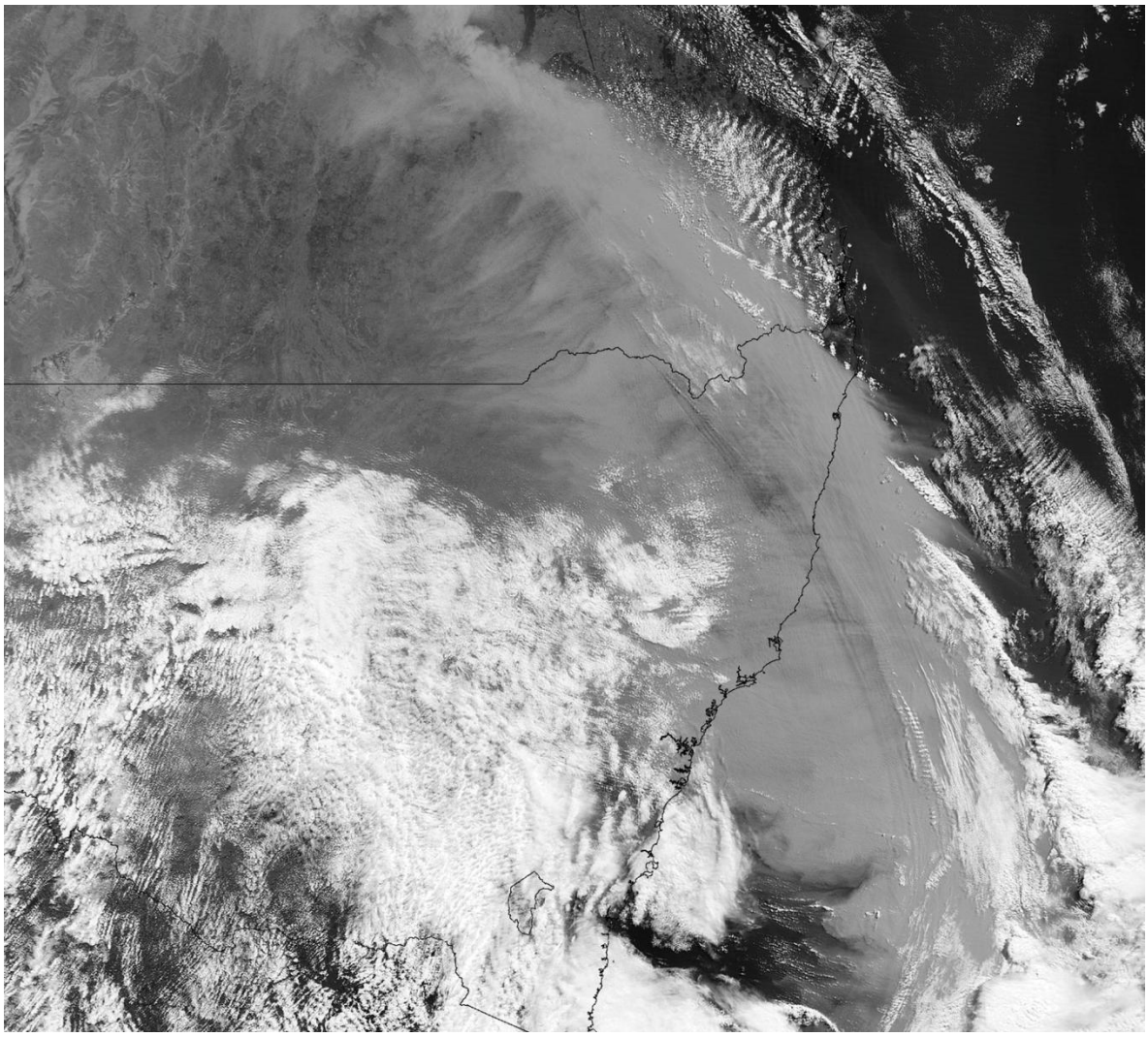
Department of Environment, Climate Change and Water NSW, 2009-2010 Annual Report, pages 21-40.

Chapter 2
Climate change and its impacts are minimised to protect the environment, the economy and community wellbeing



DECCW leads strategies to minimize the impacts of climate change, reduce greenhouse gas emissions and ensure the people of NSW prosper in a low-carbon economy.

Context

NSW has a very variable climate, with many regions prone to extreme weather such as storms or heatwaves. Such conditions can create droughts, floods and bushfires. Changes to the NSW climate are expected to exaggerate this variability, making it more difficult to manage NSW's valuable landscapes and ecosystems, including the largest and highest alpine areas in Australia, extensive rangelands and productive agricultural areas, and a large part of the Murray–Darling Basin.

The population of NSW is concentrated in coastal areas, with some Sydney suburbs and coastal towns susceptible to sea-level rise and increased flooding. Reliable and up-to-date information will help the NSW Government and the community manage the impacts of climate change. DECCW supports ongoing research and modelling, and is developing innovative technology and guidelines to allow the community to access and use up-to-date information in decision-making.

NSW was the first Australian state or territory to introduce long-term emissions reduction targets. A cut of 60% in emissions by 2050 is the target set in the 2010 *State Plan – Investing in a Better Future.* The NSW Climate Change Fund and NSW Energy Efficiency Strategy, introduced in 2007–08, are helping households, business and government to save energy and water, and reduce greenhouse gas emissions.

The NSW Government has announced it will develop a new Climate Change Action Plan to replace the existing NSW Greenhouse Plan. The new plan will set out the NSW Government's strategic priorities for tackling climate change over the medium-term, and will guide programs in research and development, clean energy and energy efficiency, sustainable transport, green jobs and skills, natural resources management and water security.

Further information will be made available on www.environment.nsw.gov.au/climatechange/actionplan.htm.

Outcomes

- Understanding the causes and impacts of climate change
- Reducing greenhouse gas emissions
- Realising a low-carbon economy
- Adapting to climate change to minimise harm and capture benefits.

Key drivers

- State Plan – Investing in a Better Future (www.nsw.gov.au/stateplan/)
- NSW Energy Efficiency Strategy (www.environment.nsw.gov.au/households/energy.htm)
- The NSW Climate Impact Profile (www.environment.nsw.gov.au/climateChange/understanding.htm)
- NSW Biodiversity and Climate Change Adaptation Framework (www.environment.nsw.gov.au/threatenedspecies/climatechange.htm)
- NSW Climate Change Fund (www.environment.nsw.gov.au/grants/ccfund.htm)
- NSW Independent Pricing and Regulatory Tribunal's Report on the Review of NSW's Climate Change Mitigation Measures (www.ipart.nsw.gov.au)
- Metropolitan Transport Plan: Connecting the City of Cities (www.nsw.gov.au/metropolitantransportplan)

Performance indicators

- Home saver rebates paid under the NSW Climate Change Fund
- Management plans for coastal areas
- Adopted floodplain risk management plans
- Businesses participating with DECCW to improve resource recovery and sustainability
- National Australian Built Environment Rating System – commercial market penetration

Reduce greenhouse gas emissions

National context

Greenhouse gas emissions are produced by various sources, including electricity generation, transport, industrial processes, waste management, agriculture and forestry. Such emissions can be reduced by modifying behaviour or employing technological solutions.

Estimates of Australia's emissions are compiled annually in the National Greenhouse Gas Inventory by the federal Department of Climate Change. According to the latest inventory, the total NSW emissions for 2008 were 164.7 million tonnes of carbon dioxide equivalent (Mt $CO_{2\text{-}e}$), or 28.6% of total Australian emissions. NSW emissions have been relatively steady since 1990, while per capita emissions have decreased.

In April 2010, the Australian Government announced that it would defer introducing a national emissions trading scheme until at least 2012, while remaining committed to achieving a 5% reduction on year 2000 emissions by 2020. NSW Government programs will continue to contribute to meeting this target, and NSW remains committed to its State Plan target to achieve a 60% cut in greenhouse gas emissions by 2050.

The absence of a national measure to cap, control or price carbon emissions affected DECCW's actions to reduce greenhouse gas emissions during the reporting year, and is likely to increase uncertainty for investors in cleaner energy sources in NSW.

State initiatives

NSW commitments to reduce greenhouse gas emissions are set out in the NSW State Plan in the following targets to:

- achieve 20% renewable energy consumption by 2020 in light of the Australian Government's expanded Renewable Energy Target
- implement 4,000 gigawatt hours of annual electricity savings through NSW energy efficiency programs by 2014
- increase training for clean energy and other green jobs
- increase participation in green skills training (TAFE NSW and other publicly funded training) by 5% by 2013.

Notwithstanding delays to a national emissions trading scheme, the NSW Government continued to act on improving energy efficiency and investment in low emissions technologies, including renewable energy.

Actions included:

- investing over $700 million in climate change programs through the Climate Change Fund (see below)
- establishing six renewable energy precincts to streamline the development of wind power (see 'NSW renewable energy precincts')
- committing up to $120 million to NSW-based bids under the Australian Government's Solar Flagship program (see 'Solar Flagship program').

NSW Climate Change Fund

The NSW Government's Climate Change Fund, established in 2007, supports a range of programs to help households, businesses, communities, schools and the government save energy and water and reduce greenhouse gas emissions. DECCW administers the fund, manages grant applications and issues residential rebates.

These programs are reported on in more detail below.

NSW Energy Efficiency Strategy

Under the NSW Climate Change Fund , DECCW oversees implementation of the NSW Government's $150-million Energy Efficiency Strategy, which aims to lessen the impact of rising energy prices on businesses and the community by supporting them in lowering their energy consumption.

Measures funded under the strategy include the Energy Efficiency Community Awareness Program (see below), expansion of the Sustainability Advantage program, the $15-million Energy Efficiency for Small Business Program, the $63-million Home Power Savings Program and the $20-million Energy Efficiency Training Program (see 'Support individuals, families, communities, businesses and government to adopt sustainable practices' section for information on these four programs).

Energy Efficiency Community Awareness Program

The three-year $15-million Energy Efficiency Community Awareness Program commenced in 2009. Through the program, tips and information are provided on ways of saving power and reducing power bills at home and work.

Resources include:

- the black balloons advertising campaign titled ‘Save power – What can you do in your world?’ which includes a website (www.savepower.nsw.gov.au) and e-newsletter with updates on energy savings, and community education activities to help households, community organisations and their networks to save energy and water
- information about energy efficiency initiatives, such as rebates, to help homes become more water and energy efficient.

The campaign’s tracking research is showing increased community knowledge of the links between power use and the environment, and awareness of actions that can be taken at home and work to reduce power. Following the campaign over the summer of 2009–10, almost two-thirds (63%) of respondents said they were ‘motivated to act in ways that use less electricity, or would think about it’, compared to 45% of respondents in previous surveys.

Research also shows that the summer 2009–10 television campaign reached 80–85% of 18–54 year olds in NSW at least once, and 60–65% three or more times.

The Save Power campaign has as its target a 1% reduction in household electricity use, supported by various other programs being delivered under the Energy Efficiency Strategy. If there is a 1% reduction in electricity consumption, NSW householders could save up to $50 million on their annual power bills, the equivalent of more than 252,000 tonnes of carbon pollution, or 50 billion black balloons.

Residential rebates

The NSW Home Saver Rebate Program has allocated $170 million in rebates for households that make their homes more water- and energy-efficient. Rebates were available in 2009–10 for efficient hot water systems, washing machines, rainwater tanks, dual flush toilets and hot water recirculators, and for the removal of inefficient second fridges in selected NSW areas. Rebates for washing machines finished in June 2010.

DECCW approved 118,848 hot water system rebates from July 2007 to June 2010, totalling nearly $87 million. These households will reduce greenhouse gas emissions by an estimated 297,120 tonnes each year.

The rainwater tank rebate, introduced in July 2007, provides up to $1,500 for installing a rainwater tank connected to toilets or a washing machine, or both. Through the Climate Change Fund, DECCW paid 40,154 rebates for rainwater tanks from July 2007 to June 2010, at a cost of $24.1 million.

A $150 washing machine rebate was introduced in August 2008 and finished on 30 June 2010. DECCW paid 76,223 rebates for water efficient appliances from August 2008 to June 2010, at a cost of $11.4 million.

Rebates of $200 for dual flush toilets and $150 for hot water circulators were introduced in January 2010. Rebates paid so far for toilets are saving more than 55 million litres of water every year across NSW. No rebates for hot water circulators had been paid by 30 June 2010.

In August 2008, the Fridge Buyback Program was introduced to provide householders with $35 to have a second, old refrigerator taken away from their home. The program has provided regular collection runs to selected areas in metropolitan Sydney, the Illawarra, Shoalhaven, Central Coast and Blue Mountains regions. The program has been allocated $2.8 million over three years to take 19,000 old fridges out of circulation, and when complete will save an estimated 13,300 tonnes of greenhouse gas emissions each year and up to $210 a year from households’ energy bills. By June 2010, 14,631 fridges had been collected, saving an estimated 10,240 tonnes of emissions each year.

Rebates of $200 for dual flush toilets were introduced in January 2010 under the NSW Home Saver Rebate Program.

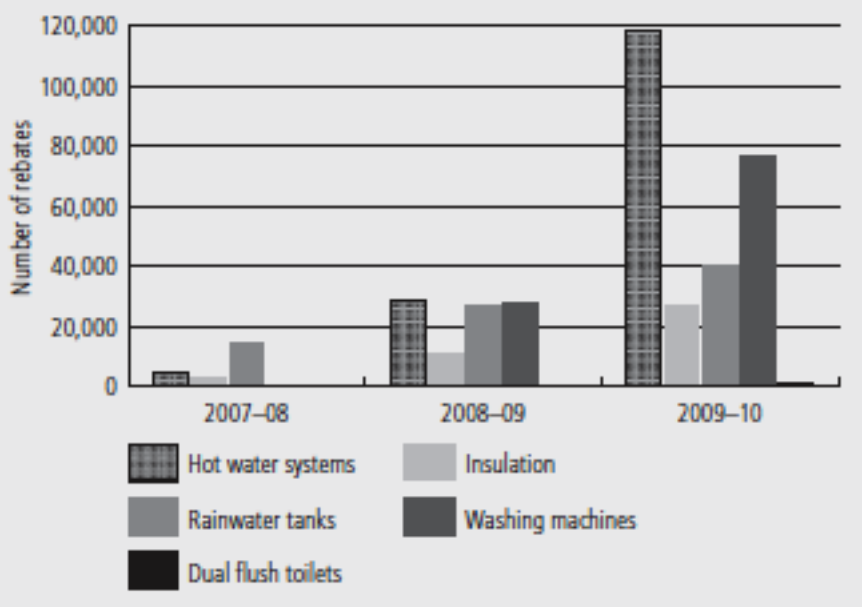
PERFORMANCE INDICATOR

Home saver rebates paid under the NSW Climate Change Fund

Definition: The $170 million NSW Home Saver Rebate Program (formerly known as the Residential Rebate Program), which was introduced in 2007, targets the devices and appliances that are the highest water and energy users in NSW homes. This indicator reports the cumulative number of rebates since the program began. Rebates were previously available for ceiling insulation until June 2009. Applications for fully purchased and installed insulation (by 30 June 2009) were accepted up until 30 September 2009 and paid during 2009–10.

A detailed breakdown of rebates issued by local government area is available at www.environment.nsw.gov.au/rebates/index.htm

Home Saver rebates paid under the Climate Change Fund (cumulative)



Interpretation: The strong uptake of rebates in 2008–09 continued in 2009–10. Water efficient washing machines are saving over 1.8 billion litres of potable water each year across the state. Funded rainwater tanks have made more than 1.8 billion litres of potable water savings since July 2007. An estimated 310,160 tonnes of greenhouse gas savings each year are being made through hot water systems and ceiling insulation funded in NSW homes since October 2007.

Green Business Program

The NSW Green Business Program funds projects that save water and energy in businesses in NSW. The current program has allocated $8.3 million to support 22 projects, saving an estimated 192 million litres of water, 33,000 megawatt hours of electricity and 35,000 tonnes of greenhouse gas emissions a year. To 30 June 2010, 11 of the projects had been completed. These projects included:

- a new lighting system for 16 Bunnings warehouse stores, which combined with a new store design is estimated to save 2,535 MWh of electricity and 2,713 tonnes of greenhouse gas emissions a year
- a University of Technology, Sydney project that recycles waste water from its central plant cooling towers into the toilet flushing system throughout its 28-storey building complex, saving an estimated 2.5 million litres of water a year
- a multi-faceted approach to water savings by Rous County Council, which develops partnerships with business water users and helps them put savings actions into practice, reducing drinking water use by almost 13 million litres a year.

More information can be found at www.environment.nsw.gov.au/grants/ccfgbp.htm

Renewable Energy Development Program

The Renewable Energy Development Program has allocated $40 million over five years to support the commercialisation of new renewable technologies. The program has so far funded six large projects at a cost of $24.8 million. These projects include geothermal, solar thermal and biogas projects, which together will either generate electricity or reduce grid electricity use by an estimated 96,000 megawatt hours, reduce summer peak demand by

11,400 kilowatts and save an estimated 103,000 tonnes of greenhouse gas emissions a year.

Central Coast Water Savings Fund

The Central Coast Water Savings Fund, established in partnership with the Gosford and Wyong councils' water authority in 2006, encourages investment in water savings projects on the Central Coast. A total of $7.7 million has so far been allocated to 67 projects that will save an estimated 890 million litres of water each year. To 30 June 2010, 43 of the projects had been completed.

During 2009–10, the fund approved $2,426,990 of funding. A million dollars was provided to Gosford City Council for the Stormwater Harnessing for Sustainable Water Management project and $98,000 was provided to Wyong Shire Council to harvest stormwater from local residential areas to irrigate golf courses at Toukley Golf Club.

Public Facilities Program

This program is providing $30 million for water- and energy-saving projects in public facilities such as schools, community buildings, sporting facilities, museums and galleries. Through the first round of grants, the program allocated $11.1 million to 54 projects, saving an estimated 200 million litres of water and 11,000 tonnes of greenhouse gas emissions a year.

A second round of grants was initiated in 2009–10, offering:

- funding for projects that demonstrate water and energy savings in educational or other public facilities (demonstration projects)
- funding of up to $40,000 for not-for-profit community organisations to undertake simple, low-cost water and energy saving upgrades in their facilities (community savers projects).

Funding of $6.9 million was approved for 18 demonstration projects at local council buildings, schools, TAFEs, scout halls and hospitals. These projects are expected to save 162 million litres and 8,800 tonnes of greenhouse gas emissions a year.

Funding of $6.6 million was approved for 281 community savers projects at pre-schools, aged care group halls, sport and recreation clubs and disability and support service centres. These projects are estimated to save up to 132 million litres of water and 4,826 tonnes of greenhouse gas emissions a year.

CASE STUDY

Hunter region rebate campaign

In the Hunter region, a promotional campaign was undertaken in November 2009 to raise awareness and uptake of the rebates that DECCW can provide for efficient hot water systems, washing machines, rainwater tanks, dual flush toilets and other water- and energy-efficient appliances.

The rebate campaign was rolled out through Together Today, a network of local companies, utilities, councils and media organisations of which DECCW is a major sponsor and supporter. In October 2009, before the campaign began, only 5.7% of households in the region had taken advantage of the program. By April 2010, 11.6% of households had applied for and received a rebate. The significant increases in rebate uptake across the Hunter region were achieved through a campaign of events, television, print and web media (www.togethertoday.com.au). The campaign focused on a series of case studies showing how individuals, families and homeowners had reduced their energy and water bills in their homes and gardens. The website linked to pages providing state and federal rebate information and application materials.

NSW renewable energy precincts

DECCW has encouraged substantial new wind farm investment, including the creation of six renewable energy precincts. Precincts have been established in the New England Tablelands, Upper Hunter Valley, Central Tablelands, NSW/ACT border region, the South Coast and Cooma–Monaro. DECCW employs a dedicated officer for each precinct, as well as a statewide coordinator. These people are working with communities near the precincts to involve them in developing renewable energy in their regions.

The precincts complement NSW planning reforms for renewable energy, including:

- renewable energy projects with a peak generating capacity of 30 megawatts or more of power are now deemed 'critical infrastructure', and benefit from waived development application fees until 30 June 2011
- a commitment to manage planning approvals within four months of receipt of the environmental impact assessment.

Solar Flagship program

In May 2010 the NSW Government announced it would provide up to $120 million to assist NSW projects under the Australian Government's Solar Flagship program. The $1.5 billion national program aims to build four significant solar energy facilities that will provide the foundation for large-scale grid-connected solar power and operate within a competitive market.

The NSW Government has offered the largest amount of financial support of any state or territory for large-scale solar power. Of the eight projects shortlisted by the Australian Government under round one of the program, there are three NSW-based solar photovoltaic project proposals. Proponents will now undertake further feasibility studies and submit full applications to the Australian Government.

DECCW encourages substantial investment in new wind farms.

NSW Electric Vehicles Taskforce

The level of interest in electric vehicles and plug-in hybrid electric vehicles is growing in Australia and internationally. DECCW is working to encourage the uptake of electric vehicles in NSW in the following three areas:

- trialling the vehicles in a range of uses
- addressing potential barriers to mass adoption, such as recharging issues
- integration with the electricity grid.

DECCW chairs the NSW Electric Vehicles Taskforce, which advises the NSW Government on developing a market for electric vehicles. The NSW Government announced in May 2009 that it would work to speed up the introduction of electric vehicles. Since then, StateFleet has participated in the trial of an electric vehicle in partnership with Mitsubishi Motors Australia. DECCW has also obtained a lease for one of the first Mitsubishi iMiEVs to be made commercially available. Delivery is expected later in 2010.

Lisa Corbyn, Director General, in one of DECCW's electric cars.

FleetWise

FleetWise is a voluntary partnership with private sector passenger fleet operators to help operators reduce greenhouse gas emissions and costs by choosing cleaner vehicles, minimising distances travelled, and operating fleets more efficiently.

The program commenced with a pilot in 2008–09 that engaged four participants and over 1,000 vehicles. The pilot achieved a 12% reduction in greenhouse gas emissions from the participating fleets. DECCW worked in 2009–10 to extend the program to other fleet operators in NSW.

Also during 2009–10, the program was identified by the Council of Australian Governments as part of the National Strategy on Energy Efficiency.

A formal launch is planned early in 2010–11, after which the program will be extended to cover heavy vehicles.

Cycling initiatives

DECCW has worked with Bicycle NSW on the *On Your Bike* program, which encourages better use of existing infrastructure, identifies infrastructure enhancements and better integrates cycling with other modes of transport. *On Your Bike* complements the development of the NSW BikePlan, which was launched on 16 May 2010, and details a $158-million, 10-year plan for funding bicycle infrastructure projects across NSW. The NSW BikePlan will be led by DECCW and the NSW Roads and Traffic Authority.

DECCW also administered a cycling proficiency training program with AustCycle. The program provided 420 free training vouchers for adults from 2008 to June 2010.

CASE STUDY

High carbon storage inventory at Pillicawarrina.

Measuring carbon stocks in soil for environmental and economic benefits

Scientific research is building a more comprehensive picture of the amount of carbon that can potentially be stored in different areas under different land uses – for example, under cropping uses in the higher rainfall parts of a catchment, and under grazing conditions in the low rainfall areas.

DECCW is working with Industry and Investment NSW on a project to improve the measurement of soil carbon. Large quantities of carbon can be stored in soils as the result of land rehabilitation, leading to increased vegetation cover. DECCW is seeking to quantify this storage capacity as a possible means of addressing future climate change.

This project is being trialled in the Lachlan catchment in central-west NSW. In 2009, DECCW purchased a section of 'Pillicawarrina', an irrigated and dry-land farm in the Macquarie Marshes, for addition to the reserve system (for information on the rehabilitation project, see Chapter 4, 'Infrastructure projects to support wetland restoration' under 'Improve the condition of natural resources').

At Pillicawarrina, satellite imagery has been used to generate a high-resolution data layer showing soil and biomass carbon on the property. This will allow a carbon inventory to be produced, and changes in soil and biomass carbon to be monitored.

In collaboration with the Spatial Information Cooperative Research Centre, DECCW scientists are also developing techniques to apply imagery to the assessments of biomass and soil carbon.

It is also proposed to develop a market-based initiative under the Australian Government's National Carbon Offset Standard, to enable land holders to earn money from trading in soil carbon. Economic research is identifying the market rules that could deliver the best trading arrangements. The market needs to effectively manage risks such as non-permanence of carbon storage, volatility and leakage.

As part of the first stage of the project, Sydney University's Resources, Energy and Environmental Markets Laboratory reviewed the performance of other soil carbon sequestration market-based instruments. The next stage is to test the effectiveness of these different models.
This project will help to overcome barriers to soil carbon trading that have tended to keep financial returns low, by improving the information base, streamlining trading rules and, in the final stage, building consumer confidence through certification under the National Carbon Offset Standard.

Encourage the NSW community to adapt to climate change

Climate impact profile

In June 2010, DECCW released the NSW Climate Impact Profile, supported by a series of regional impact profiles, that describe some of the likely impacts of future climate change on the settlements, lands and ecosystems of NSW.

Overall temperatures in NSW are expected to increase, with higher maximum and minimum temperatures likely to be experienced in all seasons. The greatest increases in maximum temperatures are projected to occur in the north and west of the state. North-eastern NSW is likely to experience a slight increase in rainfall during summer, while the south-western regions are likely to experience a significant decrease in winter rainfall. Many parts of the state will experience a shift from winter-dominated to summer-dominated rainfall.

Higher temperatures are likely to result in significantly increased evaporation across much of the state by 2050. The projected increases in evaporation are likely to counteract the expected increases in summer rainfall across NSW, leading to drier soil conditions in the west. The projected changes to rainfall and evaporation in northern NSW appear to be within recorded levels of variability. However, the drying of the autumn, winter and spring seasons in the south, and particularly in the south-west, is expected to fall outside the natural variability observed in the historical climate record.

The regional climate projections were developed by the Climate Change Research Centre at the University of NSW. They will be used by DECCW scientists to assess the likely impacts of future climate change on biodiversity, soils, stream flow, run-off, the coast and flooding risk by 2050.

The profile will help state and regional decision-makers develop planning and response strategies. It is available on www.environment.nsw.gov.au/climatechange/understanding.htm.

CASE STUDY

Developing effective techniques to cope with climate change

DECCW, with other NSW agencies, is examining the south-eastern NSW community's level of exposure to specific climate change risks, and its ability to cope with and adapt to those risks. The assessment encompasses the south coast, alpine region and the Southern Tablelands, and is a pilot project for future similar assessments across the state.

Such assessments will lead to actions to reduce vulnerability or to build adaptive capacity and resilience in communities and industries. Assessments of different sectors and communities can be compared, providing a more holistic assessment of a region's vulnerability to climate change.

The project has gathered more than 200 experts from state and local government in south-east NSW to attend a series of workshops. The outcomes of the workshops will be collated in a report, due to be completed in December 2010, which will identify key vulnerabilities in the region to climate change impacts and present a framework from which a regional adaptation strategy can be developed. A similar assessment for the Riverina–Murray region will commence in 2010–11.

Sea Level Rise Policy Statement

Coastal communities and environments are particularly vulnerable to climate change due to the potential for increased sea levels, flooding and coastal erosion.

In November 2009, the NSW Government released its Sea Level Rise Policy Statement, which outlines the support that the Government will provide to coastal communities and local councils to prepare for and adapt to rising sea levels, and to reduce risks from coastal hazards.

The policy statement sets out benchmarks that support consistency in land-use planning and coastal investment decision-making. These benchmarks anticipate rises, relative to 1990 mean sea levels, of 40 centimetres by 2050 and 90 centimetres by 2100. The benchmarks were established by considering the most credible national and international projections of sea level rise, and take into account the uncertainty associated with sea level rise projections. A technical note explains how these benchmarks were derived from reports by the Intergovernmental Panel on Climate

Change and the CSIRO.

DECCW has also released draft guidelines for consultation that explain ways in which these benchmarks should be applied in coastal and flood hazard assessments. These are complemented by guidelines released by the NSW Department of Planning.

Final guidelines are due to be finalised early in 2010–11.

The policy statement and other documentation, as it becomes available, are accessible on www.environment.nsw.gov.au/climatechange/sealevel.htm.

Working with NSW Health

DECCW has funded the 'Beat the Heat' project, which is a social marketing campaign and education strategy run by NSW Health to help people understand what actions they can take to decrease their sensitivity to the health impacts of heatwaves. It aims to ensure that vulnerable groups of people (including the elderly, very young and those with mental health or cardiovascular conditions) and the public health system are adequately prepared for heatwaves. DECCW has been working in 2009–10 to prepare a media campaign that will run over the summer of 2010–11.

Working with local government

Since there is likely to be considerable regional variations in the type and magnitude of climate change impacts, local councils will play a key role in helping communities adapt to climate change. For some issues, responses developed and delivered locally will be more effective than those delivered statewide.

In 2009–10, DECCW consulted extensively with coastal councils and the Local Government and Shires Associations on the Sea Level Rise Policy Statement and associated guidelines, as well as on proposed legislative amendments to implement coastal erosion reforms.

Also in 2009–10, DECCW and the Local Government and Shires Associations progressed a range of responses to climate change under a memorandum of understanding. A survey undertaken in July 2009 found that local councils are seeking further assistance on managing climate change impacts, including guidance on risk assessment and insurance, and reducing risks. In May 2010, the Local Government and Shires Associations, funded and assisted by DECCW, held a workshop to identify key risks to local councils and the information and tools they needed.

Sustainable urban transport

DECCW is encouraging people to adopt healthier, more sustainable transport solutions such as walking and cycling. In 2008–09 DECCW used market research to better understand the motivations that influence the choices of different groups of transport users. A project known as SMILE (Sustainable Mobility Initiatives for Local Environments) aims to assist local councils to promote specific initiatives tailored to the needs of particular geographic areas, and encourage a shift away from car-based travel to more sustainable forms of transport. In 2009–10 a demonstration site project began in partnership with Randwick City Council to test the results of the SMILE profiling tool. Four initiatives are being implemented at the demonstration site – workplace travel plans, encouraging increased walking and cycling, a local rewards program and promoting car sharing. Results of the demonstration project and a SMILE tool for council planners will be released in 2011.

Cycling is being encouraged under the Sustainable Mobility Initiatives for Local Environments project.

CASE STUDY

DECCW supports infrastructure's ability to withstand climate change impacts

DECCW is helping to mitigate climate change risks to roads, rail, bridges, ports and water supply equipment by supporting the Australian Green Infrastructure Council (AGIC) to develop the infrastructure sustainability rating scheme.

DECCW provided funding for the climate change vulnerability component of the scheme, which applies to all phases of infrastructure's life, from concept and design to construction, maintenance and decommissioning. It gives infrastructure projects a rating, based on performance against a series of best-practice standards.

In early 2010, the scheme was tested on two projects managed by NSW Public Works – the Shannon Creek Dam and the Lithgow Sewage Treatment Plant Augmentation – to evaluate its performance.
The trial was successful and the software is expected to be launched early in 2010–11.

Minimise and manage potential increased, risks to life, property and the environment

Coastal, estuary and urban floodplain risk management

DECCW works with local councils, catchment management authorities and communities across the state to ensure the long-term protection, conservation and restoration of coastal, estuarine and floodplain environments, and to manage the risks posed by natural hazards such as coastal erosion, coastal inundation, flooding and sea level rise.

DECCW's Coastal Management Program and Estuary Management Program provide technical and financial assistance to local councils to:

- prepare coastal zone management plans and supporting studies
- carry out projects to reduce risks associated with coastal hazards, improve coastal environments and improve estuary health.

A review of these programs in 2009–10 has resulted in greater emphasis being placed on:

- updating coastal hazard studies to incorporate new sea level rise benchmarks (see 'Sea Level Rise Policy Statement' in 'Encouraging the NSW community to adapt to climate change')
- updating estuary plans to consider climate change impacts, including sea level rise
- monitoring and improving estuary health
- managing high-risk coastal areas and stressed estuaries.

In 2009–10, the Coastal Management Program provided $1.48 million in grants for 20 projects. The Estuary Management Program provided $2.24 million for 24 projects.

The Floodplain Management Program aims to reduce the impacts of flooding and flood liability on communities and to reduce private and public losses resulting from floods. The program provides technical and financial support to councils and eligible public land managers to:

- make informed decisions on managing flood risk by preparing floodplain risk management plans
- implement floodplain risk management plans and mitigation works to reduce risks and losses
- provide essential information to the State Emergency Service to enable effective planning of emergency responses to floods.

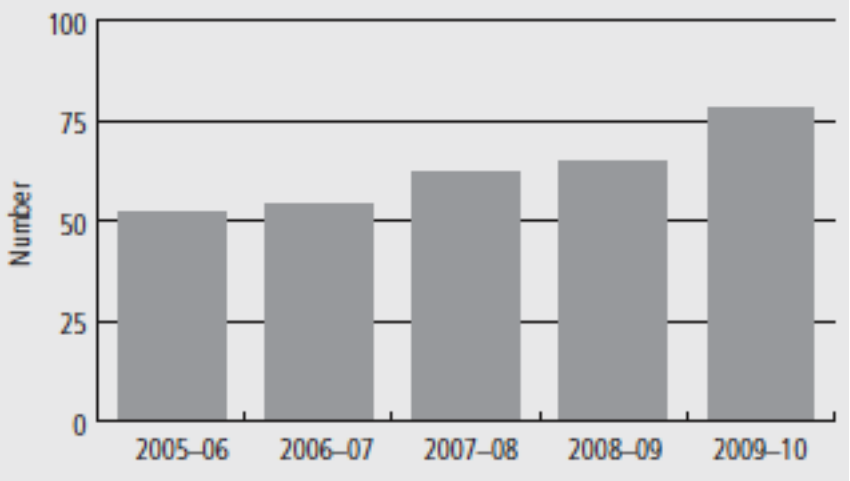
In 2009–10, the Floodplain Management Program provided $10.3 million in grants to 80 councils across NSW.

PERFORMANCE INDICATOR

Management plans for coastal areas

Definition: Councils have been preparing coastline management plans since the release of the 1990 Coastline Management Manual and preparing estuary management plans in accordance with the 1992 Estuary Management Manual. In 2002, the *Coastal Protection Act 1979* was amended to introduce new requirements for coastal zone management plans. These plans, which can now be prepared for the coastline and/or estuaries, are to include coastal erosion emergency management actions. Some councils are updating their old plans to comply with the new requirements and to include the NSW Government's sea level rise benchmarks. Other councils do not have pre-existing plans and are starting afresh. DECCW provides technical advice and financial assistance to help local councils prepare their plans.

Estuary management plans adopted by councils



Interpretation: The cumulative number of estuary management plans adopted by councils indicates the high level of council and community support for developing and implementing these plans.

The non-estuary management plans prepared to date do not conform with the current plan requirements.

New key performance indicators will need to be prepared following the introduction and subsequent passing of new legislation and guidelines for coastal zone management planning.

Rural valley-wide floodplain management

DECCW prepares rural floodplain management plans under the *Water Act 1912*. These plans are used to manage the distribution of flood waters across rural floodplains in western NSW and, wherever possible, to provide for the unimpeded passage of flood waters to maintain valuable floodplain environments and habitats.

The plans also provide remedial solutions to control floodplain works that are likely to redistribute flood flows, block floodplain connectivity or increase flood risks to farmers. The NSW Office of Water, administered as part of DECCW, uses these plans for assessing floodplain work approvals.

DECCW exhibited three draft rural floodplain management plans for the Edward–Wakool Rivers system in March 2010. The draft plans (for stages 1, 2 and 3 – see www.environment.nsw.gov.au/ruralfloodplains/fmp/edwardwakool.htm) cover some 4,000 square kilometres of the Central Murray floodplain extending from Deniliquin to the Edward River, north of Swan Hill. These floodplains support important cropping and grazing industries and many natural and cultural assets, including two wetlands listed under the international Ramsar convention. The draft plans aim to maintain and restore flood connectivity to flood-dependent ecosystems while helping to reduce the risk of farms flooding. The exhibited plans will be completed early in 2010–11.

During 2009–10, DECCW also worked on six rural floodplain management plans in key areas covering approximately 6,000 square kilometres of the Murray–Darling Basin. Once these plans are finalised, there will be 21 plans covering about 25,000 square kilometres of the basin.

Valley-wide floodplain plans were also progressed in 2009–10. Such plans will provide more consistency in planning, fast-track the planning process and manage areas not covered by existing plans. Valley-wide plans

will also strengthen the coordination of rural floodplain management planning with floodplain harvesting management.

Coastal erosion reforms

Some 40 houses have been lost due to coastal erosion since the 1940s and around 200 houses are at risk from erosion should there be frequent major storms. Sea level rise and the possibility of more intense or frequent storms in the future could place more homes at risk.

In October 2009, the NSW Government announced proposed amendments to legislation (see case study below and www.environment.nsw.gov.au/coasts/coastalmgtdocs.htm), and additional support to better equip councils to deal with the challenges of coastal erosion.

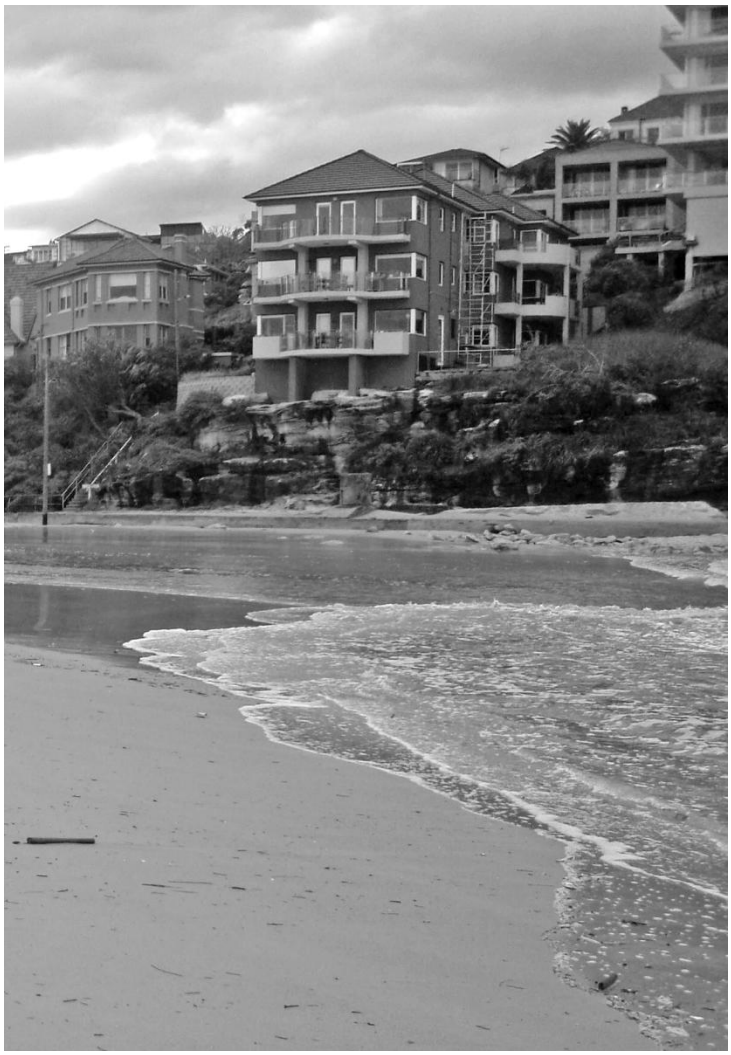
The reforms included the Sea Level Rise Policy Statement (see ‘Encouraging the NSW community to adapt to climate change’), and draft guidelines to assist councils with planning temporary coastal protection works, managing emergencies and constructing seawalls. The draft guidelines are due for release and public consultation in the second half of 2010. DECCW is preparing further guidelines to support the implementation of these planning improvements.

As part of the reforms, proposed amendments to the *Coastal Protection Act 1979*, the *Local Government Act 1993* and various regulations were introduced to the NSW Parliament in June 2010. Related amendments are also

planned for the Infrastructure State Environmental Planning Policy. The overall aims of the amendments are to:

- increase options for councils when dealing with coastal erosion and unauthorised coastal protection works
- clarify what landowners can do to protect their properties, particularly in emergencies, including applying for consent to build permanent walls provided they maintain the works and prevent any associated erosion
- strengthen requirements for the preparation of coastal management plans
- create an expert NSW Coastal Panel to advise on coastal management and approve development applications in some circumstances.

The amendments will enable beachfront landowners to fund works to protect their homes from erosion impacts, but there will be strict conditions to ensure that those works do not impact on adjacent areas of beach, other beachfront properties, or public enjoyment of the beach. Other provisions include allowances for emergency temporary coastal protection works in specific circumstances, managing the impacts of landowner-funded long-term coastal protection works, improving order powers, increasing penalties and improving exemptions from liability. The amendments are scheduled to be considered by Parliament in late 2010.



Legislative changes will enable landowners to fund works to protect their homes from beach erosion impacts

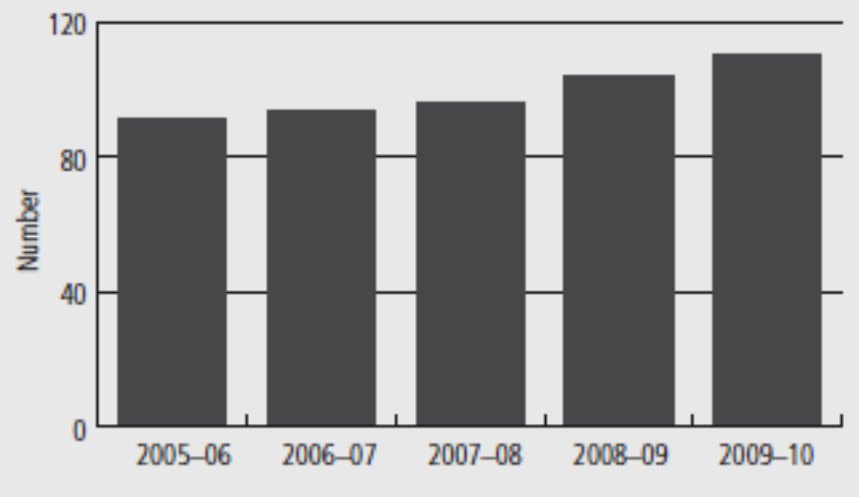
PERFORMANCE INDICATOR

Adopted floodplain risk management plans

Definition: This indicator measures the cumulative number of urban floodplain risk management plans prepared by local councils. Councils are responsible for preparing these plans in urban or closely settled rural areas.

DECCW provides technical advice to, and funding assistance for, councils for the preparation and implementation of floodplain risk management plans. DECCW also administers a range of floodplain management programs.

Floodplain risk management plans



Interpretation: At 30 June 2010, there were 110 floodplain risk management plans completed for urban areas in NSW. These plans help councils to manage flood risks by reducing the impacts of flooding and flood liability in accordance with the NSW Government's Flood Prone Land Policy and the Floodplain Development Manual.

Emergency management and climate change

Many NSW communities live with the risk of natural hazards, including floods, severe storms and bushfires. The NSW Government recognises the social, economic and environmental consequences of emergencies and the need for a coordinated response by all agencies that have responsibilities in such emergencies.

In 2009–10, DECCW worked with the Climate Change Working Group established by the State Emergency Management Committee to develop a NSW Climate Change Emergency Management Program, that is designed to:

- identify new and changing risks to emergency services
- enhance community resilience and the capacity to respond to emergencies
- adjust planning processes and risk assessment guidelines to reflect new and changing risks
- identify critical assets at risk
- adapt emergency management institutional arrangements.

Key work DECCW undertook during 2009–10 included:

- establishing the Eastern Seaboard Climate Change Initiative, which is researching the impacts of climate change and climate variability on the Australian east coast and ranges, such as the destructive weather systems known as 'east coast lows'
- a project funded by the national Natural Disaster Mitigation Program to examine future sea level rises and coastal hazards in NSW
- the NSW Tsunami Risk Assessment project, in collaboration with the NSW State Emergency Services, and with funding from the national Natural Disaster Mitigation Program, to assess the level of tsunami risk to the most vulnerable communities in NSW and assist with emergency planning
- a study funded by the Climate Change Impacts and Adaptation Research Program to investigate the possible impacts of climate change on bushfire threats to biodiversity, ecosystems and the Sydney community.

CASE STUDY

A project to predict the altered frequency and severity of bushfires under climate change was initiated in 2009–10.

Impacts of climate change on natural hazards

A key project under the NSW Climate Change Emergency Management Program is to improve the understanding of eight key natural hazards faced by communities and emergency authorities – fire, wind, lightning, hail, flash flooding, riverine flooding, heatwaves, and coastal erosion and inundation. Profiles for each region have been compiled, which provide information on the current exposure to these hazards and projections of future changes which use the best available information to predict frequency, severity and altered characteristics due to climate change.

The profiles were developed by DECCW in collaboration with Emergency Management NSW, the Bureau of Meteorology and the University of Wollongong, and were distributed to emergency management agencies in June 2010.

Climate change and biodiversity

Climate change is recognised as a major long-term threat to biodiversity, and is listed as a key threatening process under both the NSW *Threatened Species Conservation Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). Climate change will also affect the environment's ability to provide natural resources and healthy ecosystems on which communities and industries depend.

In 2009–10, DECCW developed *Priorities for biodiversity adaptation to climate change*, which outlined actions that DECCW will perform over the next five years in four key areas:

1. enhancing understanding of the likely responses of biodiversity to climate change and re-adjusting management programs in light of this information
2. protecting a diverse range of habitats through building a comprehensive, adequate and representative public reserve system in NSW, with a focus on under-represented bioregions
3. increasing opportunities for species to move across the landscape, by working with partners and the community to protect habitat and create landscape connections
4. assessing adaptation options for ecosystems that are most at risk from climate change in NSW.

Future temperature projection across NSW

A project to spatially define regional temperature changes due to climate change was completed by DECCW in 2010. The project built on previous studies that provided methodologies for predicting future rainfall, evapo-transpiration and run-off for NSW and the ACT.

The project resulted in a new dataset providing high-resolution future temperature projections in a grid cell pattern across NSW and ACT up to the year 2030. The new dataset will be used by decision makers in all levels of government who determine how to guide natural resources planning and investment in the future.

Effects of climate change on estuaries

DECCW worked in 2009–10 as a member of the National Estuaries Network to identify the potential impacts of climate change on estuary ecosystems, and possible adaptation strategies.

Projected impacts in estuaries include changes to salinity gradients, saltwater intrusion into aquifers and inundation of coastal wetlands as a result of sea level rise, changes to water quality and availability, changes in habitat distributions and species abundance, ocean acidification and impacts from intense coastal storms.

These impacts are likely to occur in tandem with other stresses on estuaries, such as coastal population growth and excessive nutrients, which will also present challenges for agencies managing estuaries. Estuary managers can help reduce risks and improve the resilience of estuaries by identifying the areas that are the most vulnerable to impacts of climate change, monitoring any changes, and developing and implementing adaptation strategies (see also 'Coastal, estuary and urban floodplain risk management' section).

Great Eastern Ranges Initiative

In 2007, the NSW Government announced a three-year program to establish a conservation corridor along the 1,200-kilometre NSW section of the Great Eastern Ranges corridor. The Great Eastern Ranges Initiative is improving the connectivity of the forests and woodlands that extend along the ranges in NSW through voluntary conservation programs on private and public lands. Connectivity is particularly critical in light of the projected impacts of climate change on many habitats.

More than 60 organisations are working with land holders on projects in five key regions – 'Slopes to Summit' (near Albury), 'Kosciuszko to Coast', 'Southern Highlands', 'Hunter Valley' and 'Border Ranges'.

The leading partners – the NSW Nature Conservation Trust, Greening Australia, Bush Heritage Australia, OzGreen, and the National Parks Association (NSW) – signed a memorandum of understanding with DECCW in May 2010 to commit to long-term leadership and governance of the initiative.

Highlights in 2009–10 included:

- launching a new partnership website in November 2009 (see www.greateasternranges.org.au/)
- researching adaptive conservation planning and management of climate change impacts
- creating conservation agreements, wildlife refuges, conservation covenants, paddock restoration incentives and property vegetation plans on private lands in targeted conservation areas
- holding the first National Linking Landscapes Summit, including a keynote address by Harvey Locke, founder of the North American Yellowstone to Yukon Initiative
- developing the 'Connect Kids' DVD on Aboriginal culture and connection to Country, for use in NSW schools
- achieving $13.65 million of co-investment from partner organisations and land holders, from initial Environmental Trust seed funding of $3.25 million
- delivering a multimedia interpretative display for use in national park visitor centres.

CASE STUDY

Measuring changes in wetland elevation and sedimentation in saltmarsh at Homebush Bay.

Mangroves, saltmarshes and sea level rises

Mangrove and saltmarsh occur where the land meets the sea, so they are very susceptible to impacts of sea level rise. As mangroves have already encroached into saltmarshes in south-eastern Australia, it seems that sea level rise threatens the long-term stability of saltmarsh. Saltmarsh is listed as an endangered ecological community in NSW.

The responses of mangrove and saltmarsh environments have been monitored by DECCW since 2000 in eight estuaries in NSW. DECCW uses a network of 92 'surface elevation tables', a technique developed by the United States Geological Survey, to monitor sedimentation and changes in wetland elevation.

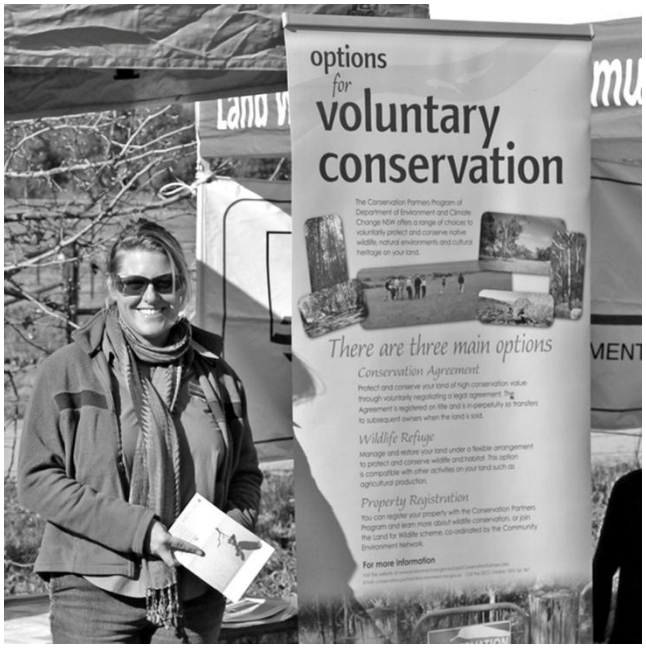
In collaboration with Industry and Investment NSW, the results have been applied to high-resolution digital elevation models of the Hunter River estuary to make predictive maps of the distribution of saltmarsh under a range of sea level rise scenarios. The results indicate that, under high sea level rise scenarios (75 centimetres in the Hunter River by 2100), the capacity of saltmarsh to respond on-site or by migrating landwards is limited.

Funded by the Environmental Trust, this work will be extended in 2010–11 to estuaries of the Tweed River, Hawkesbury River, Homebush Bay, Minnamurra River, Jervis Bay and Westernport Bay, Victoria. Maps of the projected distribution of saltmarsh in 2100 are being prepared for these estuaries.

Climate change and invasive species

Understanding the effects of climate change on the distribution, abundance and impacts of invasive species is identified as a priority research area in DECCW's *Adaptation strategy for climate change impacts on biodiversity* (see www.environment.nsw.gov.au/biodiversity/climatechange.htm). It is also a key part of addressing the listing of climate change as a key threatening process under the *Threatened Species Conservation Act 1995.*

DECCW, Macquarie University and the Australian Research Council are developing predicted distribution patterns for 103 weed species under four climate change models, and comparing these to distribution in the current climate, using data on the distribution of key weed species in Australia and data about their native habitats. Interim results for seven weed species are available on www.environment.nsw.gov.au/pestsweeds/modelling.htm.
Another project examining the potential effects of climate change on major pest animal species, involving DECCW, the Invasive Animals Cooperative Research Centre and the Australian Government's Bureau of Rural Sciences, is nearing completion. Interim results for cane toads are available on www.environment.nsw.gov.au/pestsweeds/PestAnimalsClimateChange.htm.



DECCW staff member Maya Berretta promoting voluntary conservation agreements at the Slopes to Summit Open Day on 23 May 2010.

Support individuals, families, communities, businesses and government to adopt sustainable practices

NSW Government Sustainability Policy

In 2009, the NSW Government announced a Sustainability Policy, including a commitment that the NSW Government itself will become carbon neutral by 2020. DECCW is the leading agency for implementing the policy, which requires government agencies to:

- consider sustainability in all relevant decision making
- reduce greenhouse gas emissions
- be more efficient in, and reduce wider environmental impacts associated with, their use of energy and water
- meet the challenge of expected rising prices for energy, fuel, water and waste management
- be more efficient in their vehicle use
- produce less waste and increase recycling
- use purchasing power to drive efficiency.

In March 2010, DECCW held a Sustainable Government Forum which was attended by more than 100 representatives from 64 agencies. The forum provided agencies with updates on new policy requirements, and practical technical advice and funding opportunities to help them meet sustainability targets.

DECCW also conducted workshops for agencies on topics including sustainability action planning, funding programs, energy performance contracts, sustainability for office tenants and sustainable procurement.

Implementation of the policy within DECCW is discussed in Chapter 6, ‘Sustainability policy’ under ‘A leader in sustainability and environmental performance’.

Sustainability Advantage

Sustainability Advantage helps organisations to identify, prioritise and implement environmental projects that will deliver cost savings and other benefits. As at June 2010, 430 medium to large organisations, who together employ over 310,000 people in NSW, are participating in the program. An extra $20 million has been allocated to work with another 800 medium to large businesses on waste reduction, and energy and water saving measures. The aim is to cut energy use in these businesses by at least 10%.

The program provides training, technical support and networking opportunities to promote environmental improvement in seven key areas:

- sustainability planning
- managing environmental risks and responsibilities
- resource efficiency (with a focus on raw materials, water energy and waste)
- an environmentally efficient supply chain and fleet management
- staff engagement
- external stakeholder engagement
- preparing for climate change and managing climate change impacts.

Sustainability Advantage has helped participants to deliver significant financial and environmental improvements. These include saving more than 57,000 tonnes of greenhouse gas emissions a year, by using 35,000 megawatt hours less electricity and 294,500 gigajoules less gas. More than 1,320 megalitres of water have been saved and waste to landfill has been reduced by 82,300 tonnes. Annual financial savings total at least $13 million. A further $29.5 million of potential savings have been identified.

During 2009–10 new organisations were recruited in the Hunter region, in partnership with Newcastle and Lake Macquarie City councils. There are now 58 participating organisations in the region.

In 2009–10, some participants undertook or planned projects to recover and use more than 2.5 million tonnes of industrial by-product wastes. The types of waste recovered included coal combustion products (coal wash fines, fly ash); drill mud; aluminium smelter dross; foundry sands and dust; glass fines from packaging; fibre-reinforced cement; mixed plastics packaging from the agricultural and food sectors; timber off-cuts from furniture, packaging and pallets; carpets and mattresses.

Bronze, silver, gold and platinum status is progressively awarded to member organisations as they achieve gains. This year, nine organisations achieved silver membership status: Converga, De Bortoli Wines, Focus Press, Marquis Bathroom Products, Offset Alpine Printing, Ontera Modular Carpets, Schindler Lifts Australia, TAFE NSW Northern Sydney Institute and the Austral Brick Company. A further 42 organisations achieved bronze membership.

For more information on Sustainability Advantage, see www.environment.nsw.gov.au/sustainbus/sustainabilityadvantage.htm.

DECCW is working with Flemington Markets to reduce the amount of polystyrene going to landfill.

Sustainability Advantage Energy Saver

The $20-million Sustainability Advantage Energy Saver program assists NSW organisations to identify and implement energy and carbon pollution savings. DECCW subsidises energy audits, along with technical support, so participating organisations can prepare business cases for energy efficiency opportunities and help implement projects. As at 30 June 2010, energy audits and other initiatives had helped NSW businesses reduce greenhouse gas emissions by 132,000 tonnes each year.

Thales Australia Limited, a high-tech defence technology company, marginally increased the air conditioning set-point of its workplaces in summer and reduced the temperature set-point in winter. The estimated savings for the company are $13,000, and 120 tonnes of CO_2 each year, for zero capital outlay.

Rheem Australia Pty Ltd, a hot water systems manufacturer, found that air compressor electricity consumption was 43 kilowatts when the factory was not operating, due to air leaks. With a leak reduction program, the company's energy savings are $11,900 per annum, with a net saving after labour and material costs of $3,900. At the same time, the greenhouse emissions saving is 140 tonnes of CO_2.

Another manufacturer undertook lighting and refrigeration improvements, such as sealing doors and replacing fluorescent tubes. The company will accumulate $70,350 in cost savings over 5 years ($14,070 per annum), while saving 113 megawatt hours of energy and 120 tonnes of CO_2 equivalent each year. With maintenance savings, this investment has a payback period of 2.4 to 3.75 years.

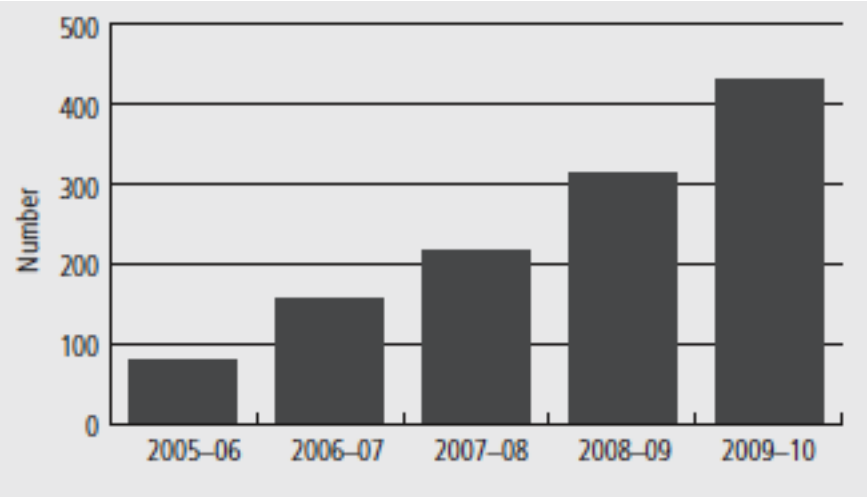
PERFORMANCE INDICATOR

Businesses participating with DECCW to improve resource recovery and sustainability

Definition: This indicator measures the cumulative number of predominantly medium to large businesses that DECCW collaborates with, principally through the Sustainability Advantage partnership program, to enhance their environmental performance. All partnerships include DECCW support for resource recovery; energy, water and fuel efficiency; and corporate planning, staff education and supply chain management.

The indicator does not reflect the depth of the relationship, which may vary from broad information networking to close collaboration and full partnership.

Businesses participating with DECCW to improve resource recovery and sustainability



Interpretation: In 2009–10, 430 businesses were participating with DECCW to improve their sustainability. Often, actions and commitments by businesses are implemented over the medium-to long-term.

CASE STUDY

Sustainability Advantage building industry partners save money and help the environment

The building products industry members of Sustainability Advantage have achieved much in 2009–10. Highlights include:

- Dunlop Flooring investing almost $500,000 in new equipment to process an additional 5,000 tonnes of recycled carpet each year (obtained from another Sustainability Advantage member, Ontera Carpets) and mattress off-cuts, saving more than $1 million annually in raw materials costs.
- James Hardie Pty Ltd saving up to $1 million annually in waste management costs by diverting 10,000 tonnes of fibre cement by-product waste from landfill (much of the work was under way before the company joined Sustainability Advantage). Another Sustainability Advantage partner, Blue Circle Southern, is using this waste as an alternative raw material in cement production. This process has been approved as a DECCW resource recovery exemption.

YHA Ltd became a Bronze Partner in Sustainability Advantage this year. Left: Simon Smith, DECCW's Deputy Director General, Climate Change, Policy and Programs. Right: Robert Henke, Operations Manager, YHA Ltd.

Waste and Sustainability Improvements Payments Program

The Waste and Sustainability Improvement Payments Program, which commenced this year, assists local councils to avoid waste, and improve resource recovery, the use of secondary resources and waste management. This new program is making available $256 million to 72 eligible councils over seven years.

Around $237 million is for 51 eligible councils in the Sydney metropolitan area, lower Hunter and Illawarra, and $19 million is for 21 eligible councils in the upper Hunter Valley, Blue Mountains, Wollondilly and coastal regions.

A total of 403 council projects were supported in 2009–10. These projects included:

- $976,000 to 33 councils to introduce or enhance recycling in public places and at public events
- $41,649 to Richmond Valley Council to introduce a household kerbside recycling collection service
- $406,000 to 22 councils to deliver education and awareness programs to improve household recycling and reduce contamination.

DECCW has prepared information to support councils in improving waste services, including guidelines, handbooks and advice on best practice techniques (see www.environment.nsw.gov.au/warr/localauthorities.htm).

Sustainable Choice

Sustainable Choice is a partnership project between the Local Government and Shires Associations and DECCW that provides local councils with tools, resources and support to implement and enhance sustainable procurement in their organisations. As of June 2010, 56 local councils were taking part in the program. A sustainable procurement training course for NSW local councils, launched in 2008, has been delivered to 373 staff from 33 councils.

Energy efficiency for small business

The Energy Efficiency for Small Business Program subsidises energy assessments and provides a tailored 'action plan' for small and medium businesses on saving energy and water, and reducing power and costs. More than 6,000 businesses have registered to be part of the $15-million program, launched in February 2009. The program is limited to businesses that spend less than $20,000 on electricity per year or employ up to 10 staff. Rebates of up to $5,000 are available for improvements to lighting, heating, ventilation and cooling, refrigeration, hot water systems, insulation, boilers and compressed air use.

To date, more than 5,000 businesses have received an action plan. On average, these plans save businesses an average of $1,400 in energy costs and reduce carbon pollution by 10 tonnes each year.

Industry associations are promoting the program across NSW. For example, a partnership with Dairy NSW will help more than 700 dairy farmers implement energy saving opportunities, such as installing variable speed drives on milk vacuum pumps.

The Energy Efficiency for Small Business Program is also working with Energy Australia across the hairdressing industry. DECCW aims to involve 400 hairdressers in a complete down-light replacement, from which they will benefit by an average annual saving of $250 per year.

CASE STUDY

The Feel Amazing Wellness Centre

The Feel Amazing Wellness Centre, owned and managed by a husband and wife team, offers natural therapies such as massage, naturopathy and chiropractic treatments, and employs three full-time staff and eight part-time staff.

The centre viewed the Energy Efficiency for Small Business Program as an opportunity to reduce carbon pollution and save money. Following an energy assessment, the business:

- replaced halogen down-lights in the reception area with compact fluorescent and high-efficiency halogen lights
- installed a timer on the hot water system
- installed zone dampers on air-conditioning ducts
- encouraged staff to turn off lights and equipment when they were not in use.

The result of these simple actions is a saving of $413, or 3,916 kilowatt hours, of electricity each year, and an annual reduction in greenhouse gas emissions of 4.19 tonnes CO_2 equivalent.

Home Power Savings Program

The Home Power Savings Program is a $63 million initiative to provide free home energy assessments, energy refits and tailored advice to help save power and money in 220,000 eligible households across NSW. Participating households can save up to 20% on their power use through a free home power assessment conducted by an energy expert, a power savings kit including simple retrofit items to help kick-start savings, and a personal action plan advising on low cost initiatives to save power. Householders can have energy-efficient light bulbs, water-saving showerheads and low-flow tap aerators installed in their homes, and receive tailored advice on other ways to save energy.

The program was successfully piloted in more than 600 homes in western Sydney during 2009–10, and was launched for homes across NSW in May 2010. For more information see www.savepower.nsw.gov.au/households/home-power-savings-program/about-the-program.aspx.

Families are saving money, energy and water through the Home Power Savings Program

Sustainable buildings

The National Australian Built Environment Rating System (NABERS) is a suite of environmental performance rating tools for Australian buildings. DECCW manages NABERS on behalf of a national steering committee that represents state and federal governments.

NABERS ratings for offices are made for energy, water, waste and the indoor environment, and will soon include transport. Ratings of energy and water are made for participating shopping centres, hotels and homes. New tools for

schools, hospitals and data centres are being developed.

In 2009–10, 540 commercial buildings received accredited NABERS energy ratings. This brings the total proportion of buildings rated in NSW to 60%, and nationally to 50%. The NABERS energy and water ratings have been embraced by the hotel industry, with 18 NSW hotels now rated. In addition, 12 agreements were signed committing new and refurbished buildings to achieving high NABERS energy ratings.

During the year, 195 buildings received water ratings. A further 16 waste ratings and 14 indoor environment ratings for offices were also completed.

NABERS training was provided to 2,625 people, with the number of accredited assessors to deliver NABERS ratings increasing by 22% to 647.

Regulation for mandatory disclosure of NABERS ratings as part of a building's sale or lease was introduced to the Australian Parliament in June 2010. This will ensure NABERS is used nationally as the means of disclosing the energy efficiency of commercial buildings.

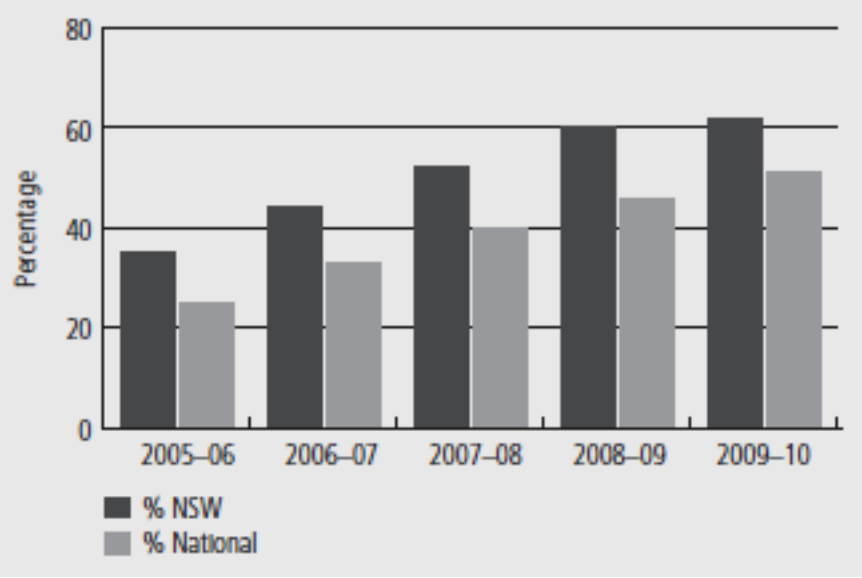
PERFORMANCE INDICATOR

National Australian Built Environment Rating System – commercial market penetration

Definition: This indicator measures the proportion of the cumulative number of national office buildings which have been rated using the National Australian Built Environment Rating System (NABERS).

NABERS measures the energy, water, waste and indoor environmental performance of a building compared with its peers. Ratings are on a one- to five-star scale, with five stars representing best performance. Ratings are voluntary. NABERS is managed nationally by DECCW.

National Australian Built Environment Rating System – commercial market penetration



Interpretation: By 30 June 2010, 11.5 million m² of office space in Australia (51% of the total available office space) and 5.3 million m² of NSW office space (62% of available NSW office space) had been rated for its environmental performance using NABERS. There has been an 11% increase in rated space over 2009–10 in Australia, and a 3% increase in NSW. On average, office buildings using NABERS to measure, manage and reduce their greenhouse gas emissions and water use have improved their greenhouse performance by 13% and water efficiency by 15%. Together, these buildings are achieving total annual savings of 228,000 tonnes of CO_2 and 1,088,000 kL of potable water.

In 2009–10, 802 NABERS energy and water ratings for offices were submitted to DECCW.

NSW Green Skills Strategy

The NSW Government is investing in a Green Skills Strategy to ensure the NSW workforce is well-placed to tackle climate change. The Energy Efficiency Training Program – a $20-million, four-year program to 2013 being co-delivered by DECCW and the Department of Education and Training – is developing the knowledge and skills of key tradespeople and professionals, such as engineers, electricians, facilities managers and manufacturing staff. It funds

vocational and higher education training, new courses in energy efficiency and renewable energy, and the development of trainers, to improve the design, installation and maintenance of energy-efficient products and services.

The following outcomes were achieved in 2009–10 under the program:

- 589 vocational students (mostly from the utilities and construction sectors) were funded to receive energy efficiency training
- six organisations were awarded funding to develop new courses and resources for vocational trainers
- 18 industry partnership projects commenced, focusing on company demonstration projects and course development (see www.environment.nsw.gov.au/sustainbus/greenskills/eneftraining.htm)
- the University of Wollongong and the University of NSW were funded to develop engineering courses and resources, both at under- and post-graduate levels, and as professional development for practising engineers.

Resource recovery

In November 2009, the Environment Protection and Heritage Council, comprising federal, state and territory environment ministers, supported a new Australian Packaging Covenant that will replace the National Packaging Covenant following its expiry on 30 June 2010. The new covenant has a stronger focus on package design, workplace recycling, public place recycling and litter reduction (see www.packagingcovenant.org.au). The council has also been investigating options to increase the recovery of packaging materials, particularly beverage containers, and commissioning a survey to investigate how much communities are willing to pay to increase packaging recovery and reduce litter. DECCW co-led this project during the year, providing technical guidance and advice on environmental economics. The results of the survey will be presented to the council in 2010–11.

In NSW, 50% of packaging waste was recycled in 2008–09 (the latest year for which figures are available) across all waste streams. Of the 152 local councils in NSW, 124 were providing kerbside recycling collections, a 24% increase since 2000. These collection services contributed to the recovery of 385,000 tonnes of packaging that was recycled from households in 2008–09, an increase of 26,500 tonnes (7.4%) compared to 2007–08. Further improvements are expected as a result of council initiatives and research into packaging waste in the commercial and industrial waste sector.

DECCW has partnered with Planet Ark to launch a new national directory of recycling providers. The website (see www.businessrecycling.com.au/) and the hotline were launched in June 2010. The directory enables people to quickly locate local businesses that will recycle their items of interest and find the services they need to recycle their waste. At present, the directory includes information on more than 100 different materials. DECCW expects this will become the most extensive directory of recycling services in Australia.

During the year, DECCW helped form the Industrial Ecology Network in NSW. ‘Industrial ecology’ involves businesses finding uses for each others’ waste. DECCW facilitated trials involving large volumes of packaging and other items used in the hospital system, which was coordinated by hospital staff and biomedical products manufacturers themselves. Since February 2010, DECCW has been involving international medical product suppliers and a specialist medical waste collection company in this project.

Consumer information

To provide consumers and industry with more information about environmentally sustainable products, DECCW provides specifications for recycled materials that can be used in building and construction, such as recycled concrete, brick and asphalt for pavements, earthworks and drainage (see www.environment.nsw.gov.au/warr/greenspec.htm). In 2009–10, DECCW updated and expanded the specifications, assisted by the Institute of Public Works Engineering Australia (NSW) and a panel of engineers and industry organisations.

Love Food Hate Waste campaign

NSW households throw away more than 800,000 tonnes of food waste each year, with a further 300,000 tonnes from businesses in the Sydney region. Food waste is now the largest component by weight of the household garbage bin (38% by weight), and is the second largest component of commercial waste in Sydney (13% by weight).

A survey of 1,200 households by DECCW in December 2009 found that the average NSW household disposes of $1,036 of edible food per year that could have been consumed had it been managed better. At a state level, this translates to more than $2.5 billion worth of food being thrown away by households.

An education program titled Love Food Hate Waste was developed by DECCW and launched by the Minister for Climate Change and the Environment in May 2010 to help boost awareness of the issue, and to encourage households and businesses to adopt simple behaviours to waste less food, save money and better protect the environment. A website (see www.nsw.gov.au/articles/love-food-hate-waste) has been set up to help households buy and cook the right amount of food and advise on ways of storing food to minimise spoilage.

The program is supported by a range of partners, including Woolworths, the Australian Food and Grocery Council, the Local Government and Shires Associations of NSW, NSW Health and the NSW Food Authority.

CleanOut program for household chemicals

This partnership between DECCW and local councils in the Sydney, Hunter and Illawarra regions deals with the safe disposal of hazardous household waste, including chemicals, poisons, gas bottles and batteries. The program helps to ensure that such waste is not placed in domestic waste bins, dumped in bushland or tipped into waterways.

CleanOut staff establish temporary collection sites for the community to safely dispose of their chemical waste. In 2009–10, there were 41 collections organised, with more than 25,000 community members helping to safely dispose of almost 900,000 kilograms of hazardous materials, mainly paints, oils, batteries and gas cylinders. These figures represent a 9% increase from the previous year.

Since the inception of the program in 2003, nearly 140,000 householders have safely disposed of almost five million kilograms of hazardous waste.

In regional areas, voluntary regional waste groups are supported by DECCW to facilitate collections. In 2009–10, more than 107,000 kilograms of household chemicals were collected from households for safe disposal.

National TV/IT recycling scheme

Australian Bureau of Statistics figures reveal that in 2007–08, Australians disposed of almost 17 million televisions, computers, keyboards, scanners, printers and other devices. This implies that NSW residents could be responsible for as many as seven million of those obsolete or unwanted pieces of electronic equipment.
In November 2009, a national recycling scheme for televisions and computers was announced by Australian environment ministers. The NSW Government has a leading role in planning and designing the scheme, which is expected to commence in 2011. The national scheme requires manufacturers and importers of televisions and computer products to fund and coordinate a free drop-off recycling service. The scheme aims for 80% of all obsolete televisions and computers to be collected for recycling by 2021, compared with the current rate of 10%. See www.ephc.gov.au/taxonomy/term/51 for more details.

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