



Environmental Sustainability Plan 3 2011-2013

Summary

Signatories

(Statement of endorsement from the Board)

We acknowledge our local community, local councils, local environmental groups and our customers.

We pledge commitment to implementing this plan, including its ongoing review, in consultation with these groups.



Anne Barker
Managing Director, City West Water

The following signatories acknowledge, endorse and support the City West Water Environmental Sustainability Plan.

Community Liaison Committee



Ben Morgan



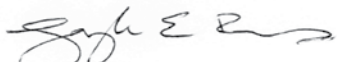
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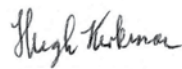
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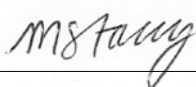
Gayle Brenchley



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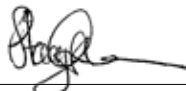
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Definitions

Alternate water

Water derived from a variety of sources including recycled water, stormwater, greywater, groundwater and industrial water that is treated to an appropriate standard for given uses. The standards and allowable uses are established in national and state guidelines.

Biogas

Biogas typically refers to gas produced by the biological breakdown of organic matter in the absence of oxygen. It can provide a clean source of renewable energy from organic waste.

Bulk Water

Total water supplied by a water provider (Melbourne Water) to another water provider (City West Water).

Central Region Sustainable Water Strategy

The Central Region Sustainable Water Strategy released in 2006 is the strategy developed under the previous State Government to secure water supplies for homes, business, industry, agriculture and the environment for the next 50 years. It considers all water sources including rivers, reservoirs, aquifers, as well as recycled water, storm water and seawater. The region covers an arc around Melbourne, including Geelong, Ballarat, the Macedon district and West Gippsland. It includes the Barwon, Moorabool, Werribee, Maribyrnong, Yarra, Bunyip, Thomson and Latrobe river catchments.

Class A recycled water

A health-based microbiological standard for recycled water quality that is defined in EPA Victoria guidelines.

Dual water supply scheme

An urban water recycling scheme where recycled water is provided to households for uses approved in EPA Victoria guidelines, via a reticulation system that is separate from the drinking water supply.

EMS

Environmental Management System

Environmental Assessment

Environmental Assessment is an internal City West Water process to identify and manage environmental risks associated with City West Water managed capital projects.

Environmental Management Plan

A plan or program that seeks to achieve a required end state and describes how activities that have, or could have, an adverse impact on the environment, will be mitigated, controlled, and monitored.

EPA

Environment Protection Authority Victoria

ESP

Environmental Sustainability Plan

Fit for purpose recycled water

Water generated from sewage, greywater or stormwater systems and treated to a standard that is appropriate for its intended use.

Green Power

Electricity sourced from renewable sources, typically wind, solar, biomass or hydro. City West Water purchased Green Power is sourced from nationally accredited renewable energy sources.

Greenhouse gas emissions

Gaseous pollutants released into the atmosphere through human actions that amplify the greenhouse effect. The greenhouse effect is widely accepted as the cause of global climate change. Gases

include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), chlorofluorocarbons (CFCs), hydro fluorocarbons (HFCs), per fluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Greening the West

A strategy to secure supply of fit for purpose water in City West Water's service area to enable the planting and maintenance of suitable trees and vegetation in areas that will deliver:

- an improvement in suburb microclimate by reducing the area of paved surfaces exposed to sunlight
- a reduction in airborne particulate matter and contaminants
- an increase in the number and size of passive recreation sites to enhance the health of residents
- increased habitat corridors in new and established areas to promote wildlife diversity
- an increase in the amenity value of new and established suburb streetscapes.

Integrated water management

A philosophy of managing all facets of the water cycle including water supply, sewerage and drainage, in an integrated way.

ISO14001 Standard

ISO14001 is a standard that provides a framework to assist organisations to develop an Environmental Management System (EMS). It requires an organisation to:

- determine the organisation's impact on the environment and relevant regulations to the operations of the business
- create a plan to control processes to minimise the environmental impact
- monitor the effectiveness of the system at meeting objectives as well as legal and other
- continually analyse the results and improve systems.

ISO22000 Standard

ISO22000 is an international standard that specifies requirements for a food safety management system where an organisation in the food chain needs to demonstrate its ability to control food safety hazards in order to ensure that food is safe at the time of human consumption. City West Water applies this standard to sewage quality management.

Joint Water Efficiency Plan (JWEP)

The Plan details the water efficiency actions to be implemented by Melbourne's water corporations for two years from 2011-12 until 2012-13. It takes into account targets established in the Central Region Sustainable Water Strategy, other Government policies and the Water Supply Demand Strategy.

Life cycle assessment

An assessment process which determines the environmental impacts of products and services through all stages of production, usage and disposal.

NESC

Non English Speaking Communities

Net zero greenhouse gas emissions

A balance of a measured amount of greenhouse gas emissions released in a nominated scope of activities with an equivalent amount of sequestered or offset value of emissions to make up the difference.

Non residential water use

Water use on industrial, commercial, institutional and council properties.

Priority pollutant

A pollutant that has been identified (through a documented risk assessment) and agreed between the Melbourne metropolitan water utilities as posing a potential unacceptable risk to sewage quality and requires active management to reduce the risk to acceptable levels.

Priority Pollutant Management Plan

An agreed plan that includes actions, responsibilities, timelines and stakeholder consultation for reducing a priority pollutant to acceptable levels.

Residential Water Use

Water for household purposes, such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens.

Reverse osmosis

A filtering process in which a contaminated liquid is purified by forcing it through a semi-permeable membrane.

Scope 1 emissions

Scope 1 emissions, also known as direct emissions, include any emissions that occur on-site or from company-owned assets. This includes the combustion of fuels, process emissions, and refrigerant leakage. These emissions are aggregated on a facility-level, with the company's vehicle fleet considered as one facility.

Scope 2 emissions

Scope 2 emissions, also known as indirect emissions, include any emissions created directly on behalf of the company in the generation of electricity or the delivery of energy via hot water or steam.

Scope 3 emissions

Scope 3 emissions, also known as other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. transmission losses) not covered in Scope 2, outsourced activities, waste disposal, etc.

Sewage

Wastewater conveyed by the sewerage system. It includes domestic wastewater, trade waste, commercial wastewater, inflow and infiltration.

Sewer mining

Diversion and treatment of sewage directly from the sewerage system to produce fit for purpose recycled water for a defined use.

Sewerage

System for the collection and transfer of sewage. It includes sewerage pipes and pumping stations.

Sustainability Covenant

A Sustainability Covenant is a public commitment by City West Water and EPA Victoria to work together to achieve resource use efficiencies and to reduce operational ecological impacts.

Trade waste

Liquid waste that is defined to be trade waste under the Water Industry Regulations 2006. It includes any matter discharged from premises as a result of trade, industrial, commercial, medical, dental, veterinary, agricultural, horticultural or scientific activities. It does not include wastewater that is discharged from a private residential premises.

Unaccounted for water

Unaccounted for water includes water that is lost through bursts and leaks, used for fire fighting, taken through illegal connections or used through inaccurate meters.

Water sensitive urban design

The integration of urban planning with the environmentally sensitive management of the water cycle.

Water Supply Demand Strategy

This strategy details how the Melbourne water utilities will implement the government's policy directions including the Central Region Sustainable Water Strategy.

1.0 Environmental Sustainability Plan

The Environmental Sustainability Plan (ESP) sets out City West Water's plan for environmental management and improvement. It details our targets and actions, aligned to our strategic objectives and plan, over two years from 1 July 2011 to 30 June 2013. It includes responsibilities for implementing actions and targets, reporting and review.

It is available to the public via our website at citywestwater.com.au.

It also applies to the life cycle impacts of our products and services including:

- customer water use (residential and non residential)
- influencing the use of water sources to maximise the environmental value of our products and services
- sewage quality management including trade waste.

For the purposes of our ISO14001 certified Environment Management System (EMS) the ESP is designed to meet all of the requirements of clause 4.3.3 (Objectives, targets and program(s)) of the ISO14001 standard. It is consistent with the requirements of our Sustainability Policy and Environmental Policy.

The purposes of the ESP are to:

- maintain a comprehensive and integrated plan for the management of our environmental performance
- clearly identify actions and targets to achieve improved environmental management, linked to our strategic objectives and plan
- promote continual improvement in environmental performance.

The ESP applies to all operations under our control including our:

- water, sewerage and alternate water assets
- treatment plants
- head office building located in Sunshine
- field operations, including those of our maintenance contractor PFM.

1996	1997	1998	2000	2003	2005
Community Liaison Committee inception	ISO14001 Environmental Management System accreditation obtained	Environment Improvement Plan 1 developed	Environment Improvement Plan 2 developed	Environment Improvement Plan 3 developed Enviro Partnerships developed Sustainability Street and Green Street programs developed	Sustainability Covenant #1 (Resource Efficiency) Environmental Management System upgrade to revised ISO14001 standard

1.1 A proud history

We believe setting actions and targets is only the starting point for good environmental performance. Through previous ESPs we made some major leaps forward on our sustainability journey, including:

- Becoming the first water business in Australia to achieve net zero greenhouse gas emissions.**

By partnering with EPA, Victoria's independent environmental regulator, which supported our approach to achieving net zero greenhouse gas emissions through a Sustainability Covenant made under the *Environment Protection Act 1970*, we successfully achieved this goal on 30 June 2007 and maintained it thereafter.

- Recording a 48.7% reduction in per person water use since the 1990s.**

When comparing 2009-10 water consumption to the 1990s average, water use across our customer base has dropped significantly. This has been achieved through water restrictions, partnering for sustainable outcomes with our business and residential customers and a proactive leak detection program.

- Completing construction of the Altona Recycled Water Plant in 2010.**

The plant will deliver up to 9 million litres per day of high quality recycled water to industrial and commercial customers for manufacturing and irrigation uses in the Hobsons Bay area.

Since our inception in 1995, we have developed and implemented a range of plans and strategies to achieve our sustainability objectives which are depicted on the following timelines:

2006	2007	2008	2009	2010	2011
ESP 1 developed	ESP 1 Year 2	ESP 2 developed	ESP 2 Year 2	ESP 2 Year 3	ESP 3 developed
Sustainability Covenant #2 (Net Zero greenhouse gas)	Commissioning of upgraded Altona Treatment Plant	Sustainability Covenant #3 including life cycle analysis of clothes washing	Sustainable Water City Principles developed by Community Liaison Committee	Net zero gas emissions commitment continued	Commissioning of Altona Treatment Plant Ultra Filtration Reverse Osmosis Plant
Water Conservation Solutions Program for business customers implemented	Net zero gas emissions commitment continued	Net zero gas emissions	Net zero Gas emissions commitment continued	Business Resource Efficiency program implemented	Net zero gas emissions commitment continued
		Water way studies commenced			
		Finalist – Business Sustainability Banksia Awards			

1.2 An exciting future

Our Strategic Plan 2011-2016 provides a framework for how we will continue to meet the sustainability challenge under the dual pressures of population growth and climate change.

This ESP outlines how City West Water will continue to reduce our environmental impact and drive sustainability in accordance with the Strategic Plan. It includes commitments to:

- continue to support residents and businesses to practice water efficiency
- reduce reliance on drinking water supplies and make supply available to enable environmental solutions in our community by maximising the use of sustainable alternate water supplies
- drive environmental improvement in our day to day operations
- minimise greenhouse gas emissions and maintain net zero greenhouse gas emissions
- drive resource efficiency
- facilitate a healthy urban habitat through Greening the West.

2.0 Background

2.1 What do we do?

City West Water is one of the three retail water companies servicing metropolitan Melbourne and is wholly owned by the Victorian Government. Our core business is the delivery of drinking water and alternate water and the collection of sewage and trade waste from our customers in Melbourne's central business district, inner and western suburbs.

Key facts about City West Water for 2009-10 are included in Table 1 (actual data for 2009-10).

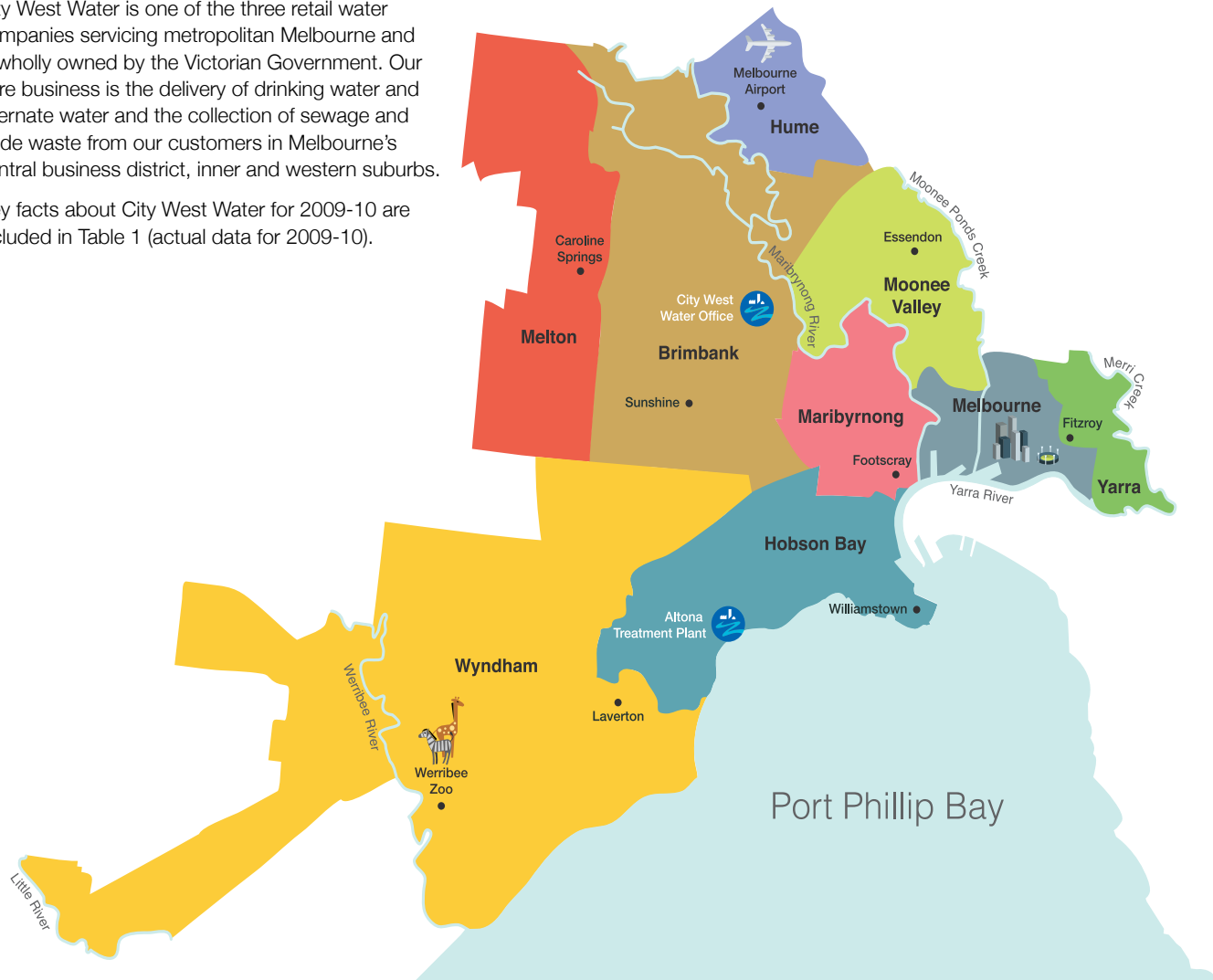


Figure 1: Our service area

Asset	Description
The volume of water purchased from Melbourne Water and supplied to residential and non residential customers	90.3 billion litres
Kilometres of water main (distribution and reticulation)	4431
Kilometres of sewer (main, branch and reticulation)	3909
No. of water pumping stations (including alternate water)	11
No. of sewerage pumping stations	71
No. of sewage treatment plants	1
No. of sewer mining plants	1
Volume of alternate water supplied to customers	380 million litres
Volume of trade waste collected from our customers	14 billion litres
Volume of sewage collected and transferred to Western Treatment Plant	70 billion litres

Table 1: City West Water Facts and Figures 2009-10

3.0 What makes us unique?

3.1 Our customers

City West Water has a smaller residential customer base and geographic area with a greater proportion of non residential customers than the other metropolitan water retailers.

Our non residential customers include large industrial operations in the food and beverage manufacturing, chemical manufacturing, oil refining, textile and automotive manufacturing industries. Our residential customers are equally diverse, with approximately 34% of people living in our service area speaking a language other than English at home.

With population projections showing that Melbourne's population growth will be greatest at its western edge, part of the resultant demand for resources will be met by City West Water.

3.2 Our service area

City West Water's service area spans the Werribee Plains district — an area that traditionally has lower rainfall than the eastern metropolitan area as a result of the 'rain shadow' created by mountain ranges north of Geelong. The Werribee Plains is home to native grasslands and Plains Grassy Woodlands which are significantly depleted on both the regional and state level. Average maximum temperatures in Melbourne are higher in the western suburbs than the eastern suburbs.

3.3 Our role in the water cycle

Our role in the water cycle includes the following:

- distribution — our assets deliver water to homes and businesses within our service area
- discharge — our assets transport sewage and trade waste from homes and businesses within our service area and discharge to Altona Treatment Plant (6%) and into Melbourne Water sewers connected to the Western Treatment Plant (94%)
- sewage treatment — we operate the Altona Treatment Plant which treats approximately 6% of the sewage discharged to our system. The plant produces high quality recycled water and discharges treated wastewater to Port Phillip Bay
- alternate water — we continue to identify and implement new opportunities to provide fit for purpose alternate water supply produced by treating sewage and blackwater, greywater, stormwater and rainwater, industrial refuse water and groundwater.

We work closely with Melbourne Water whose role in the water distribution cycle includes:

- collection and treatment of rainwater in protected catchments
- operation of the Western Treatment Plant which treats approximately 94% of the sewage discharged to our system
- production of biogas, which is produced from the anaerobic treatment processes at Western Treatment Plant, to generate renewable energy.

3.4 Towards a sustainable water city

City West Water recognises that through our role in the water cycle we can advocate for the adoption of sustainable practices across the industry and by our customers. Key opportunities to influence more sustainable outcomes include:

- the development of Water Supply Demand Strategies for metropolitan Melbourne once every five years in conjunction with the retail water businesses and Melbourne Water
- input into the development of the government water supply strategies
- collaboration with developers to create water sensitive designs for new urban developments
- working with local government to plan precincts in accordance with integrated water management guidelines
- providing sustainable alternate water supplies to supply water where it is needed most and reduce reliance on drinking water supplies
- working with residential and non residential customers to help them to value and practice water and energy efficiency
- positioning ourselves as a facilitator to connect, assist and coordinate stakeholders to contribute to a healthy urban habitat and provide suitable water supplies to enable this
- engagement with key government stakeholders on policies and programs
- participation in industry groups
- collaboration with other Victorian water businesses to align views on sustainability.



Figure 2: An artist's impression of a sustainable water city

1. Solar hot water heating

In Victoria, water heating accounts for over 25% of total residential energy demand. Using the solar energy from the sun to provide this heat could save our customers money on energy bills. Scientific modelling shows that a wide uptake of solar hot water systems, (80% on new dwellings and 20% of existing dwellings) would also save around 30 petajoules(PJ)/year. That's around 10 desalination plants worth of energy and associated greenhouse

gas emissions. City West Water will continue to communicate the link between water and energy to both residential and non-residential customers through our targeted behavioural change programs and in future City West Water publications and bill inserts.

2. Sewer mining

City West Water currently operates a sewer mining plant that treats water to Class C standard for irrigating the Sunshine Golf course. Sewer mining

is the process of tapping into a sewer and extracting sewage which is then treated and used as recycled water. City West Water is currently working with our customers on implementing their own sewer mining projects to reduce demand on drinking water supplies, including the iconic MCG.

3. Water and energy efficient equipment and appliances

City West Water encourages the uptake of water saving appliances through free showerhead exchanges and other customer programs including a range of rebates for water efficient equipment. To ensure we use the resources we have as efficiently as possible, the government has introduced the WELS (Water Efficiency Labelling Scheme) and Energy ratings of products to provide guidance to consumers when purchasing. Water supply, sewerage, plumbing and drainage goods installed by licenced plumbers also need to adhere to the minimum quality standards (WaterMark). By choosing a quality assured and more water efficient appliance you will be saving money whilst contributing to reducing water usage and often associated energy use related to hot water reduction.

4. Resource Efficiency and Industrial ecology

City West Water works with its industrial customers to reduce and recover resources that would otherwise be disposed of as waste. Heat and resources can be produced as by-products of industrial processes. Sharing heat across facilities is an efficient way to ensure it is not wasted. In this example, waste heat from an industrial facility is used to heat a nearby commercial office building. This idea is known as industrial ecology. As energy and resources become increasingly constrained more examples are occurring around Australia and the world. City West Water is part of an industrial ecology working group led by the Waste Management Association of Australia.

5. Nutrient Recovery

Our sewage contains important nutrients for agriculture. Recovering nutrients essential for plant growth such as nitrogen and phosphorus is becoming increasingly feasible with the development of new technologies. Recovering these nutrients not only saves phosphorus but also minimises the impacts of sewage waste on the environment.

6. Waste to energy

Technology now enables the extraction of resources from organic waste. City West Water, as part of their Research and Development program is continuing to work on improved ways to harness resources such as energy. The program includes emerging technologies to co-digest sewage sludge with other types of organic waste e.g. food manufacturing waste. This technique could improve the amount of gas generated and the potential reuse possibilities for organic sludge.

7. Water recycling

There are a number of processes which can be used to clean wastewater so that it can be reused. This example shows the reverse osmosis treatment technique which is employed at City West Water's Altona Treatment Plant. Reverse Osmosis (RO) involves forcing wastewater through membranes under high pressure. The membranes remove impurities from the wastewater, allowing it to be reused in industrial processes and landscape irrigation.

8. Brine in wetlands

As well as producing clean water for reuse, water recycling also produces a concentrated brine (high salt content) stream. Finding a beneficial reuse for these brine streams is an important challenge for the water industry. One example of how these brine streams might be used is to create salt marsh wetland habitats. Salt marsh wetlands are one of the vegetation classes at greatest threat from Climate Change. City West Water is investigating the potential for reusing the brine in artificial wetlands at our Altona Treatment Plant. This would provide a home for native wildlife whilst removing nutrients from the wastewater stream.

9. Integrated City Planning

The Water Services Association of Australia has been working to develop a set of principles for how Australian Cities of the Future could integrate with other parts of the community. In this example workers take the opportunity to replant trees, while undertaking a sewer renewal. In the short to medium term, realising such goals will be explored through the Victorian Governments Water Supply and Demand Strategy and our Greening the West program.

10. Fit for purpose water usage

Different end uses require different qualities of water. Matching water supplies to the end usage means all available water sources will be utilised as effectively as possible. For example treating stormwater in wetlands is becoming an increasingly popular way to remove contaminants, at the same time providing attractive natural habitats for birds, animals and people to enjoy. Treated stormwater can meet irrigation needs for trees and open spaces so we can enjoy the benefits of a healthy urban habitat without comprising our drinking water supplies. City West Water is trying to facilitate such usage of water through the Greening the West project and we are working with councils on storm water harvesting projects.

Environmentally Sustainable Design

Urban buildings can significantly contribute to environmental impacts including water and energy use, air quality and waste production. By adopting the principles of Environmentally Sustainable Design (ESD) the impact of buildings can be significantly reduced. Illustrations 11-14 demonstrates examples of ESD in buildings.

11. Rooftop gardens

Green roofs are constructed on roof tops to help insulate buildings, and make good use of inner city roof space. Creating green roofs on buildings increases building insulation, lowering temperatures within. Plants also provide shade, and release water through a process known as transpiration. If enough green roofs are constructed this could help to lower temperatures in the surrounding vicinity. This would help combat the "heat island effect" where temperatures in urban areas are warmer than surrounding natural landscapes. Rooftop gardens provide a haven for inner city residents to relax. Green roofs can be watered naturally by rainwater, or by storing it in tanks for later use.

12. Rainwater harvesting

Rainwater harvesting refers to water that is captured off roof spaces in order to be stored for later use. Because roofs are relatively clean surfaces, rainwater requires the least treatment of all alternative water supplies. City West Water assists businesses to implement viable medium to large scale rainwater harvesting projects. Rebates are also available for residents and community groups to install rainwater tanks.

13. Geothermal Heating and Cooling

Heating and cooling is provided by a geothermal heat pump, which pumps a liquid through the earth below the building in order to regulate the buildings internal temperature. This removes the need for traditional cooling towers which can contribute up to one third of a building's water usage. The website mycoolingtower.com.au has been set up by the Victorian Government to assist business customers improve their water and energy efficiency and save on chemical treatment costs.

14. Biogas Production

Sewage produced in the building is fed into a digester which produces a biogas used to heat shower water.

4.0 Environmental management at City West Water

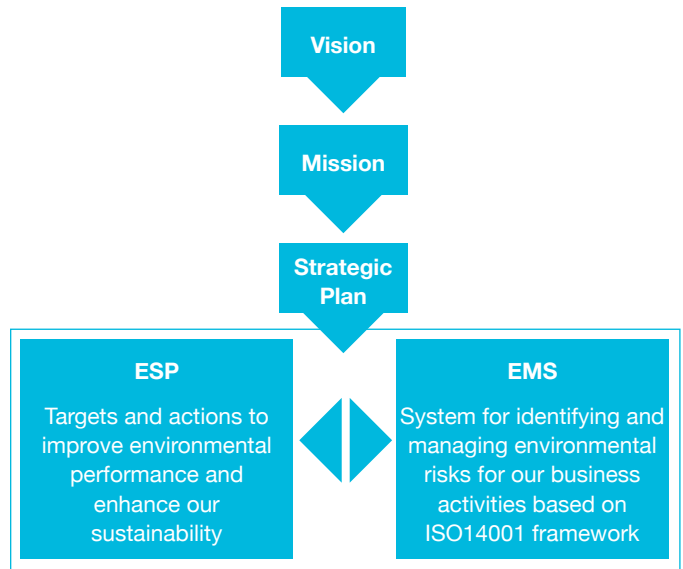
With our vision to be a truly sustainable water business, we understand the importance of integrating environmental sustainability across the business. In all our operations, we work to a 'triple bottom line' approach which balances the social, economic and environmental impacts of our business. We are a dynamic, proud and environmentally conscious company, driven and defined by our vision, mission and values. With a certified ISO14001 Environmental Management System we understand the environmental risks of operating our business. The environmental management framework is shown below.

Our Strategic Objectives (numbered) and Measures (sub points) in Table 2 define what it means to be a truly sustainable business.

4.1 What sustainability means to City West Water

For City West Water sustainability means:

- continually improving our business performance by balancing the social, environmental and economic impacts of our actions
- living and working in ways that do not jeopardise our current and future social, environmental and economic resources.



Environment	Social			Economic
	Customer	People	Community	
<i>Significantly more with significantly less</i>	<i>Right product, right price, right way</i>	<i>For today and tomorrow</i>	<i>Leading and including</i>	<i>Efficiency and growth</i>
1. Balance the needs of our customers and the environment in managing the supply and demand for water <ul style="list-style-type: none"> Melbourne will be green and no water will be wasted 2. Maximise sustainable use of alternate water <ul style="list-style-type: none"> Alternate water to reduce potable water usage 3. Protect the environment and minimise the impact of our services on the environment <ul style="list-style-type: none"> EPA discharge quality CO₂ emissions tonnes Minimise and offset greenhouse gas emissions 4. Towards zero waste <ul style="list-style-type: none"> Reuse biosolids Recycle effluent Reuse of maintenance and construction materials Minimise energy use Reduce our own waste 	5. Services matched to customer needs. There are 45 standards measured for this key objective, covering: <ul style="list-style-type: none"> Water supply Sewerage management Customer response and complaints Drinking water quality Alternate water quality First contact resolution Reduce avoidable contacts 6. Efficient water users <ul style="list-style-type: none"> Residential water usage Residential resource efficiency programs 7. Clean and efficient producers <ul style="list-style-type: none"> Non residential water usage Reduce critical contaminants Energy efficiency 	8. Right people, right jobs, right outcomes <ul style="list-style-type: none"> No. people going through technical & professional development programs Technical Officer Development Program delivery Staff turnover Staff engagement survey 9. Absolute safety <ul style="list-style-type: none"> Zero lost time injuries 	10. Community leader and advocate in water cycle management <ul style="list-style-type: none"> Increased recognition of our participation in the community to support our business objectives Increase water literacy esp. in NESCC 11. Partnering for sustainable outcomes and a healthier urban habitat <ul style="list-style-type: none"> Create alliances in every municipality for Greening the West 	12. Financial strength to deliver sustainability <ul style="list-style-type: none"> Revenue, Profit, ROE Gearing, Interest, Debt 13. Prudent and efficient <ul style="list-style-type: none"> Delivery of Water Plan commitments Efficient operating costs Efficient use of capital 14. Services enhance new business and growth in the community <ul style="list-style-type: none"> Our services are available when our growing community needs them 15. Demonstrate to our customers the value of the service we deliver <ul style="list-style-type: none"> Market research feedback Community feedback and recognition 16. Maximise the triple bottom line return to shareholder

Table 2: Our triple-bottom line Strategic Objectives and Measures

4.2 Policies

The ESP has been developed to balance our environmental programs with our social and economic objectives and contribute to our overall sustainability. It is consistent with our Strategic Objectives and Plan, Sustainability Policy and Environmental Policy.

4.3 Environmental Management System

Our Environmental Management System is ISO14001 certified and considers the risks associated with our operations. All of the activities associated with our business operations and their interactions with the environment are detailed in our environmental aspects and impacts register. These activities and impacts are risk ranked based on the likelihood and consequence of these events occurring. Impacts that are ranked high or significant are given priority for management through the development of actions and targets set out in this ESP. Our significant and high environmental risks are available on our website.

4.4 Our maintenance contractors

Our principal maintenance contractor, PFM, undertakes the maintenance of our water, alternate water and sewer networks. It has an ISO14001 accredited Environmental Management System which ensures that its operations are managed to minimise the impact of works on the environment.

4.5 Inputs into development of the ESP

Inputs into development of the ESP targets and actions are shown in Figure 3.



Figure 3: Development of ESP3 Targets and Actions

5.0 Consultation, implementation and reporting

We have built on a proud history of environmental advocacy which has seen various actions implemented across our operations since our inception. To ensure that the ESP continues to drive environmental improvement and is appropriate to the current operating environment, key stakeholders have been consulted in the development of this plan, including:

- our Community Liaison Committee
- the City West Water Board
- City West Water employees and management.

We will report progress of ESP implementation quarterly to the Community Liaison Committee and publish results annually in our Sustainability Report.

Further details of consultation and feedback on this ESP is included in Appendix A.

5.1 Community Liaison Committee

The Community Liaison Committee is made up of community members including residential and non residential customers and meets quarterly. The committee serves to help us understand community expectations, priorities and goals and facilitate greater public participation on issues that matter to the community. The committee contributes to the development of the ESP and monitors our performance against its targets and actions.

The Community Liaison Committee also believes that City West Water should seek to exercise influence through partnering with other organisations to contribute to the achievement of a Sustainable Water City. The committee has developed 10 principles that are designed to aid City West Water in its influencing role. The committee uses these principles as a basis for providing feedback to City West Water on future projects. These principles are published on City West Water’s website.

A subgroup of the Community Liaison Committee is the Altona Treatment Plant subcommittee, with members from City West Water, EPA Victoria, local government, business and community organisations within our licence area. This group considers issues relating to the operation of the treatment plant.

5.2 When will this plan be reviewed?

This ESP covers the period July 2011 to June 2013. In order to drive continual environmental improvement we must evaluate our performance and review targets and actions. This will be done in consultation with the Community Liaison Committee annually.

An outline of how we ensure our plans drive continual improvement is shown in Figure 4.

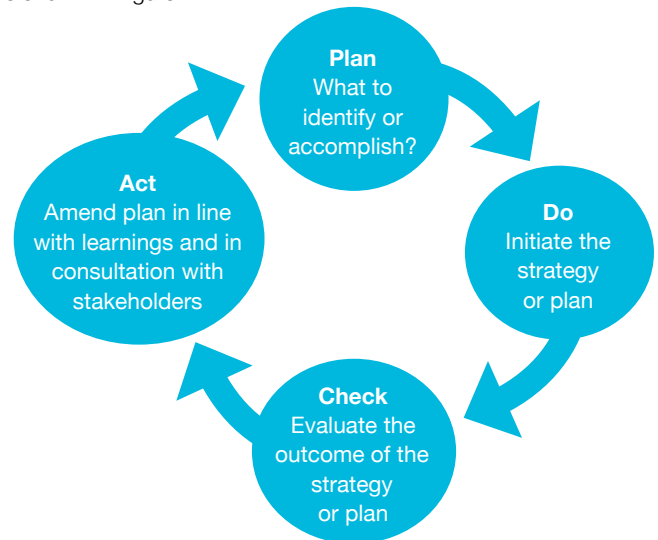


Figure 4: ESP3 Review Diagram

6.0 Objectives, targets and actions

The following sections outline City West Water's actions and targets aligned to strategic objectives, for the period July 2011 to June 2013:

- water efficiency
- driving resource efficiency
- alternate water supply
- driving environmental improvement in our existing operations
- climate change adaption and mitigation
- Greening the West.

Each section includes targets and actions aligned to City West Water's strategic objectives.

We will measure the outcomes and progress of the ESP annually and report on it within our annual Sustainability Report.

6.1 Water efficiency

Strategic Objective & Measures	Action	Target
Efficient water users <ul style="list-style-type: none"> • Residential water usage 	Residential water usage Implement actions outlined in our Water Efficiency Plan which are based on the deliverables outlined in the Central Region Sustainable Water Strategy, Melbourne Water Supply Demand Strategy and Joint Water Efficiency Plan including: <ul style="list-style-type: none"> • a sustainable garden program to educate customers on water efficient practices • an efficient washing machine exchange program to coincide with the state government rebate on front loading washing machines commencing 1 July 2011 • continued delivery of the Toilet Replacement Program • continued delivery of the Showerhead Exchange program 	Target 1 Bulk water use target: 296 litres/person/day
		Target 2 Residential water use target: 174 litres/person/day
Clean and efficient producers <ul style="list-style-type: none"> • Non residential water usage 	Non residential water usage Implement actions from the Business Resource Efficiency program based on the deliverables outlined in the Central Region Sustainable Water Strategy including: <ul style="list-style-type: none"> • provision of resources to support customer water efficiency projects • continued work with customers to identify and implement cost effective water efficiency actions including specialised or innovative projects unique to customers' water use circumstances and support to broader scale water efficiency across business sectors which may include building amenity retrofits • continued partnerships to influence and lead business water efficiency • continued work with small and medium enterprises to coincide with State Government assistance and rebates commencing 1 July 2011 • encouragement of customers to implement alternate water supply options where feasible 	Target 3 125 litres per capita per day non residential customers

Note to table: these targets reflect the JWEP commitments for 2011-12 to 2012-13

6.2 Driving a resource efficient future

Strategic Objective & Measures	Action	Target
<p>Clean and efficient producers</p> <ul style="list-style-type: none"> non residential water usage reduce priority pollutants energy efficiency 	<ul style="list-style-type: none"> support energy and resource efficiency as a direct benefit of delivering customers' non residential water efficiency projects support energy efficiency of our customers through expanding the offerings of our Business Resource Efficiency program work with customers to facilitate implementation of actions from the Steam Systems Efficiency Program ensure customers discharging priority pollutants in trade waste develop a Resource Management Action Plan containing actions to improve waste efficiency as identified in Priority Pollutant Management Plans or trade waste agreements. 	<p>Target 4</p> <p>Develop and review Resource Management Action Plans (ResourceMAPs) with customers required to manage priority pollutants which also identify cost effective water and water related energy actions for implementation¹</p> <p>Target 5</p> <p>Complete delivery of stage two of steam systems efficiency assessment program by June 2011-12</p>
<p>Efficient water users</p> <ul style="list-style-type: none"> Residential resource efficiency program 	<ul style="list-style-type: none"> complete further testing of laundry detergents' salt levels with Choice magazine 	<p>Target 6</p> <p>Publish results of laundry detergents testing during life of this ESP.</p>

Notes to table: ¹target (number of ResourceMaps) to be set each year based on customers required to manage priority pollutants in trade waste agreements

6.3 Alternate water supplies

Strategic Objective & Measures	Action	Target
<p>Balance the needs of our customers and the environment in managing the supply and demand for water</p> <ul style="list-style-type: none"> Melbourne will be green and no water wasted <p>Maximise sustainable use of alternate water</p> <ul style="list-style-type: none"> Alternate water to reduce potable water usage <p>Towards zero waste</p> <ul style="list-style-type: none"> Reuse of effluent 	<p>Continue to implement projects under City West Water's Alternative Water Strategy including:</p> <ul style="list-style-type: none"> Sunshine Golf Club sewer mining Altona Recycled Water Project Werribee Employment Precinct Mackillop College Western Treatment Plant standpipes <p>Investigate and implement feasible new projects including:</p> <ul style="list-style-type: none"> West Werribee Dual Supply Scheme aquifer storage and recovery for recycled water produced for West Werribee Altona Recycled Water Project Stage 2 stormwater harvesting including Footscray Central Activity District, Footscray Park, J.T. Gray Reserve, Paisley Park, Laverton Recreation Reserve, Keilor Park Golf Course, Afton Street and Green Gully Reserve 	<p>Target 7</p> <p>Supply fit for purpose total volume of alternate water to customers:</p> <ul style="list-style-type: none"> 2600 million litres (2011-12) 3000 million litres (2012-13)

6.4 Driving environmental improvements in our operations

Strategic Objective & Measures	Action	Target
Protect the environment and minimise the impact of our services on the environment	Environmental Management System Implement Environmental Management System to drive continuous improvement and manage environmental risks	Target 8 Annual recertification of the Environmental Management System to ISO14001 accreditation
		Target 9 All relevant environmental aspects identified in an Environmental Assessment for each project to have these aspects and controls included in the contractor Environmental Management Plan or contract documents
		Target 10 All project sites that require Environmental Assessments are to implement controls which are specified in Contractor's Environmental Management Plans or contact documents
Protect the environment and minimise the impact of our services on the environment <ul style="list-style-type: none"> EPA discharge quality 	Sewerage System Continue to implement City West Water's asset management plan including: <ul style="list-style-type: none"> a risk based assessment model which considers environmental impact of sewerage assets waterway studies to assess potential sources of exfiltration to waterways. 	Target 11 Have zero spills due to fixed equipment failure
		Target 12 100% compliance with Altona Treatment Plant licence conditions ¹
		Target 13 Three year student project to investigate alternative brine disposal options to commence 2011 (to be completed in 2014)
Recycled Water Management Manage and monitor supply of recycled water to comply with EPA requirements and minimise environmental risk ²	Recycled Water Management Manage and monitor supply of recycled water to comply with EPA requirements and minimise environmental risk ²	Target 14 Supply of 100% of City West Water produced recycled water within water quality parameters specified in Environment Improvement Plans and Recycled Water Quality Management Plans ³
		Target 15 Beneficially use 100% of biosolids generated from Altona Treatment Plant
Towards zero waste <ul style="list-style-type: none"> Reuse of biosolids 	Sewage Treatment Manage and monitor biosolids produced at Altona Treatment Plant in accordance with EPA requirements ¹	Target 15 Beneficially use 100% of biosolids generated from Altona Treatment Plant

Notes to table: ¹reflects a regulated requirement. ²is a regulated requirement for recycled water produced from sewage only. Is not a regulated requirement for recycled water produced from other source including rainwater, stormwater or groundwater. ³Target (actions for priority pollutants and timelines) to be set each year based on outcome of agreed Priority Pollutant Management Plans in consultation with retail water businesses and Melbourne Water

6.4 Driving environmental improvements in our operations (continued)

Strategic Objective & Measures	Action	Target
Clean and efficient producers Reduce priority pollutants	Sewage quality management Manage sewage quality in accordance with City West Water's Integrated Sewage Quality Management System including development and implementation of: <ul style="list-style-type: none"> • Priority Pollutant Management Plans to improve sewage quality in consultation with the other Melbourne water businesses • a plan for improved commercial customer trade waste focused on prevention of fat blockages and spills to the environment 	Target 16 Annual recertification of the Integrated Sewage Quality Management System to ISO22000 accreditation
		Target 17 Priority Pollutant Management Plan actions implemented in accordance with agreed timeframes ³
		Target 18 Commercial customer trade waste improvement plan in place by 30 June 2012
Towards zero waste <ul style="list-style-type: none"> • Reuse of maintenance and construction materials • Reduce our own waste 	Solid waste Develop and implement City West Water's Waste and Resource Recovery Plan including: <ul style="list-style-type: none"> • annual waste audits • implementation of feasible avoidance and reduction actions • review of procurement processes 	Target 19 Reduce total waste from office per FTE by 10% (all currently measurable streams including recycled). Baseline 2008-09
		Target 20 <ul style="list-style-type: none"> • 50% diversion of office waste from landfill in 2011-12 • 60% diversion of office waste from landfill by 2011-13

6.5 Climate change mitigation

Strategic Objective & Measures	Action	Target
Protect the environment and minimise the impact of our services on the environment <ul style="list-style-type: none"> • CO₂ emissions tonnes • Minimise and offset greenhouse gas emissions 	Greenhouse gas management <ul style="list-style-type: none"> • develop a climate change adaptation and mitigation strategy • maintenance and improvement of our greenhouse gas inventory for our operations 	Target 21 Net zero greenhouse gas emissions from our operations (this will be reviewed upon implementation of a carbon price)
		Target 22 Complete climate change adaption and mitigation strategy plan by 30 June 2012
		Target 23 Voluntarily report in accordance with National Greenhouse and Energy Reporting System by July 2012 if feasible
Towards zero waste <ul style="list-style-type: none"> • Minimise energy use 	<ul style="list-style-type: none"> • Investigate further efficiency improvements from operations including pumping efficiency and further fleet efficiency • Investigate renewable energy opportunities e.g. from biosolids and organic waste, review solar and hydro opportunities • Implement feasible actions from the efficiency and renewable energy studies 	Target 24 Annual report on implementation of actions from efficiency and renewable energy studies.

6.6 Greening the West

Strategic Objective & Measures	Action	Target
<p>Partnering for sustainable outcomes</p> <ul style="list-style-type: none"> • Create alliances in every municipality for Greening the West 	<p>Provide a secure supply of fit for purpose water in the western suburbs of Melbourne in accordance with the Greening the West Strategic Plan to enable the planting and maintenance of suitable trees and vegetation that will deliver:</p> <ul style="list-style-type: none"> • an improvement in suburb microclimate, i.e. reduced urban heat island effect, by reducing the area of paved surfaces exposed to sunlight through increased canopy cover • a reduction in airborne particulate matter and contaminants • an increase in the number and size of passive recreation sites to enhance the health of residents and reduce stress on the health system. 	<p>Target 25</p> <p>Development of a Greening the West Strategic Plan including criteria to assess the success of the initiative by 30 June 2012</p>
		<p>Target 26</p> <p>Facilitate the development of a Greening the West steering committee and reference group to guide the project development and delivery by 30 June 2013</p>
		<p>Target 27</p> <p>Develop pilot sites and identify and supply water from alternate sources as required for newly planted trees within the life of this ESP delivery through the life of the ESP3</p>



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