

Climate Change Strategy

Low carbon, high water security



Climate change – a risk for the water industry

The world's scientists widely agree that human activity is causing the climate to change and become less predictable. This complex and long-term global problem could affect Sydney Water's capacity to provide services to its customers. There is no simple fix. However, Sydney Water will work with its customers and stakeholders to reduce the greenhouse gas emissions that cause climate change and to minimise the impact on its operations. The organisation must prepare and adapt to make its business sustainable into the future.

Sydney Water's exposure to climate change risk



Sea level rise coupled with increased storm surge could pose risks to low lying coastal assets.

Uncertainty about future climate is compounding the risks associated with climate variability. In densely populated areas of Australia where economic activity is greatest, rainfall has declined over the latter part of last century. In the past 25 years there have been fewer high rainfall events over catchments on the east coast, including Sydney's Warragamba catchment.

The Intergovernmental Panel on Climate Change's (IPCC) 2007 Assessment Report found overwhelming scientific evidence – greater than a 90 per cent chance – that human activity is causing significant global warming. The IPCC predicts that further significant warming is likely if greenhouse gas emissions continue to increase.

Sydney Water has considered the potential range of events

that may arise from climate change. It is working to identify, measure and respond to risks associated with these events so that the business is well prepared to withstand them.

A drier, warmer climate may:

- reduce supplies of fresh water
- increase customer demand for water
- increase the risk of severe bushfires in catchments, reducing the quality of water run-off
- increase algal blooms in dams, with implications for taste, odour and toxicity
- increase the risk of pipe corrosion, odours and the need for water disinfection
- cause more extreme storms that test the capacity of sewage treatment plants

- cause sea levels and storm surges to increase, posing a flood risk to low-lying coastal assets
- change the structure and stability of soils, leading to greater risk of pipe failure
- disrupt electricity supplies due to increased storm activity or excessive demand during heatwaves.

A legislated, national greenhouse emission trading scheme is likely to begin by 2012. The scheme will put a price on greenhouse gas emissions, which could significantly increase the costs of electricity, construction projects, and other areas of Sydney Water's operations. It is imperative that Sydney Water understands its carbon risk exposure to plan for this.

Sydney Water's response

Sydney Water is in a unique position because it:

- is clearly exposed to the risks associated with climate change
- consumes almost one per cent of grid electricity in NSW
- has the capacity to generate accredited renewable energy
- creates a large volume of accredited carbon offsets
- is required by law to minimise the environmental impact of its activities, including energy use.

Sydney Water has developed a Climate Change Strategy and Action Plan to ensure that it effectively identifies and addresses the risks associated with climate change. The plan outlines how the organisation will:

Sydney Water aims to engage with the community and be part of a broad societal response to climate change by communicating its research, reducing greenhouse emissions and adapting to a carbon-constrained environment.

Sydney Water is committed to working with the NSW Government to secure water supplies for the long term through key actions under the Metropolitan Water Plan, including water conservation, recycling and desalination.

A key study is examining the likely impacts of climate change on water supplies and demand across Sydney. The project is a NSW and Australian government-sponsored collaboration between Sydney Water, the NSW Department of Water and Energy, the NSW Department of Environment and Climate Change, CSIRO, Sydney Catchment Authority, the Australian Greenhouse Office and the University of NSW.

Sydney Water has plans to reduce the effects of climate change on its operations and infrastructure to ensure that it can maintain its services over coming decades. Actions will include reducing the risk of business interruption from severe windstorms or heavy rainfall, and the risk of flooding from sea level rise and storm surge.

Because of uncertainty about climate change and its impacts, Sydney Water will take an adaptive approach and progressively incorporate the latest and most accurate scientific knowledge into its risk management processes.

Research to...

better understand the extent of its carbon footprint and the impacts of climate change

Mitigate by...

cutting its emissions by 60% by 2012, becoming carbon neutral by 2020, and by engaging with business and the community to reduce emissions

Adapt to...

reduce the risk of adverse impacts on its operations and infrastructure, and improve the sustainability of fresh water supplies

Becoming carbon neutral

In July 2007, Sydney Water made a commitment to become carbon neutral for energy and electricity consumption by 2020, and set an interim target of a 60 per cent reduction in emissions by 2012. By 2020, it aims to have eliminated, or offset, more than 400,000 tonnes of greenhouse gases each year, equivalent to taking 100,000 cars off the road every year. Sydney Water is the most energy-intensive Australian corporation to commit to carbon neutrality yet.

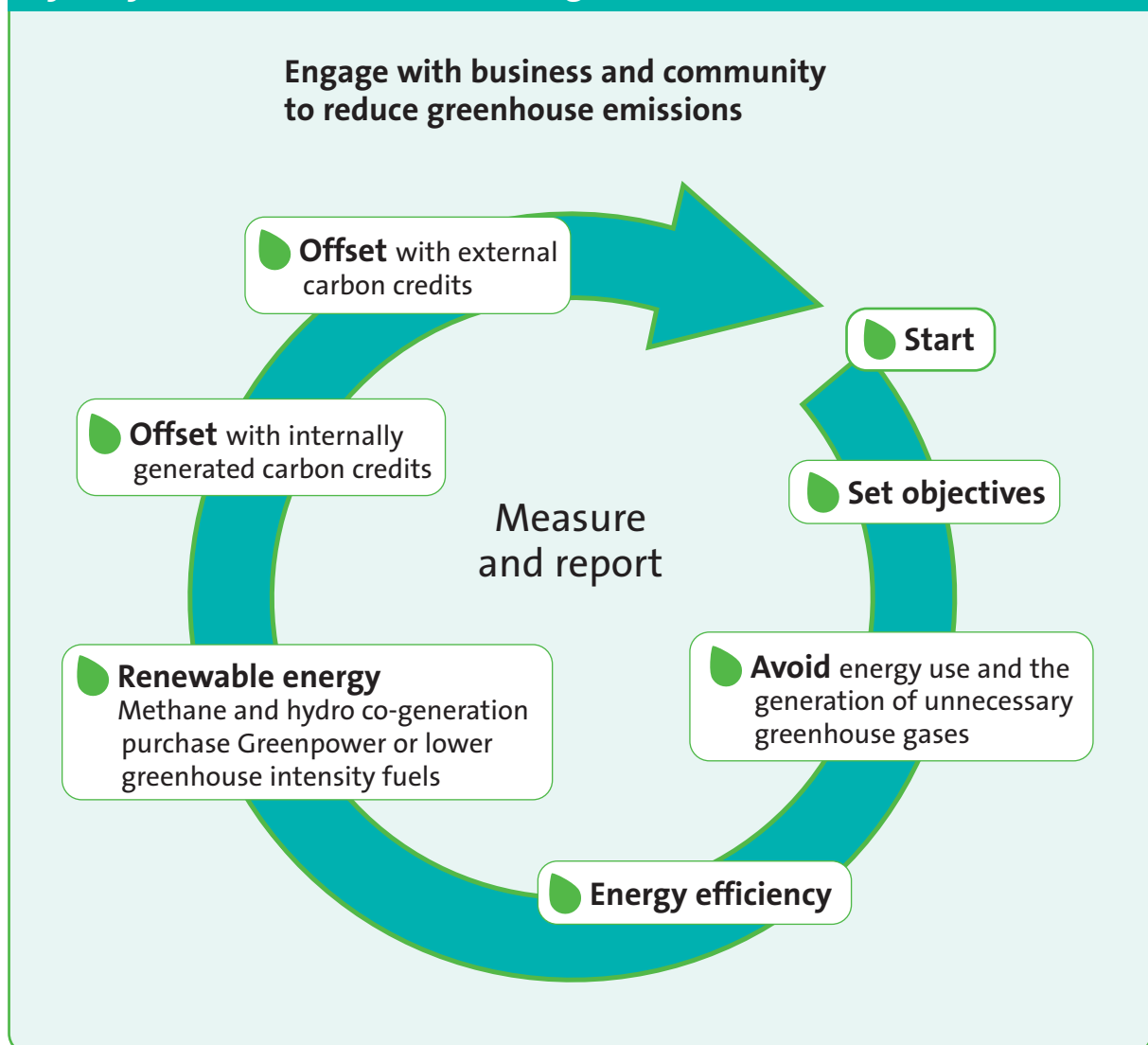
Sydney Water has adopted a set of carbon management principles that form the basis of its Greenhouse Mitigation Framework. Priority is given to reducing emissions, firstly by avoiding energy use and then through using energy more efficiently, for example using more energy efficient pumps and treatment processes. Greenhouse emissions will be considered over the full lifecycle for major projects or new facilities.

Next under the carbon management principles is

the cogeneration or purchase of renewable energy. By 2009, Sydney Water will be generating about 20 per cent of its electricity needs through hydro-generation and biogas cogeneration projects.

Any remaining emissions will be offset with carbon credits, firstly through Sydney Water programs such as WaterFix. Sydney Water generates a large number of government-accredited carbon credits through its customer demand management programs and renewable energy projects.

Sydney Water's Greenhouse Mitigation Framework





Key actions

Sydney Water's Climate Change Strategy includes:

- participating in external research to better understand the likely future climate of the Sydney region
- quantifying climate change risks to infrastructure and acting to mitigate those risks
- improving water supply security by participating in the NSW Government's Metropolitan Water Plan and constructing Kurnell desalination plant
- using accredited renewable energy to power the desalination plant
- fully quantifying the organisation's carbon footprint
- identifying and implementing best practice energy efficiency in water and wastewater treatment
- becoming carbon neutral for energy and electricity consumption by 2020
- introducing an externally verified greenhouse emissions accounting and reporting system.

Conclusion

Sydney Water aims to provide continuity of water and wastewater services in the face of climate change impacts. It will achieve this by better understanding climate change risks, reducing net greenhouse emissions to zero and increasing the resilience of its infrastructure and water supply sources.

An aerial photograph of a large dam and reservoir. The reservoir is a deep blue color, surrounded by lush green hills. In the foreground, the dam structure is visible, featuring a central tower and several spillways. The sky is a clear, light blue.

Further reading

IPCC Working Group 1, Climate Change 2007-
Summary for Policymakers, www.ipcc.ch

IPCC Working Group 2, Climate Change 2007-
Summary for Policymakers, and Ch 11 –
Australia and New Zealand

CSIRO (2007) Climate Change in Australia
<http://www.climatechangeinaustralia.gov.au>

Prime Minister's Science, Engineering & Innovation
Council Working Group (2007) Water for Our Cities:
building resilience in a climate of uncertainty

NSW Government, 2006 Metropolitan Water Plan
http://www.waterforlife.nsw.gov.au/about/metropolitan_water_plan/climate_change

NSW Greenhouse Office, NSW Greenhouse Plan 2005
www.greenhouse.nsw.gov.au

Water Services Association (2006) Refilling the Glass:
Exploring the issues surrounding water recycling in Australia.
www.wsaa.org.au

